

BORNEO JUNGLE

BY THE SAME AUTHORS

By TOM HARRISSON

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Mass-Observation. First Year's Work (Lindsay Drummond)

England. (Penguin Special) with Charles Madge.

By EDWARD SHACKLETON

Arctic Journeys (Hodder & Stoughton)

By PATRICK M. SYNGE

Mountains of the Moon (Lindsay Drummond)



The Punans have a quality of stillness They melt into the shadows and

BORNEO JUNGLE

*An Account of the Oxford Expedition
to Sarawak*

BY

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LINDSAY DRUMMOND LTD.
6-7 BUCKINGHAM STREET, LONDON, W.C.2

First Published November 1938

MADE AND PRINTED IN GREAT BRITAIN BY
MORRISON AND GIBB LTD., LONDON AND EDINBURGH

EDITORIAL NOTE

We wish to make it clear that everything in this book is the personal opinion of various members of the expedition, writing simply as individuals. Their corporate and expedition point of view has already been put forward in technical publications. Therefore nothing here written is an opinion of the Oxford Exploration Club, and though there is an editor, his job has not been to get all the statements into line, but only into some sort of sequence, while his own statements are not necessarily accepted and so on all round.

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*The photographs were taken by Dr. B. M. Hobby, A. W. Moore and
Patrick Syngé*

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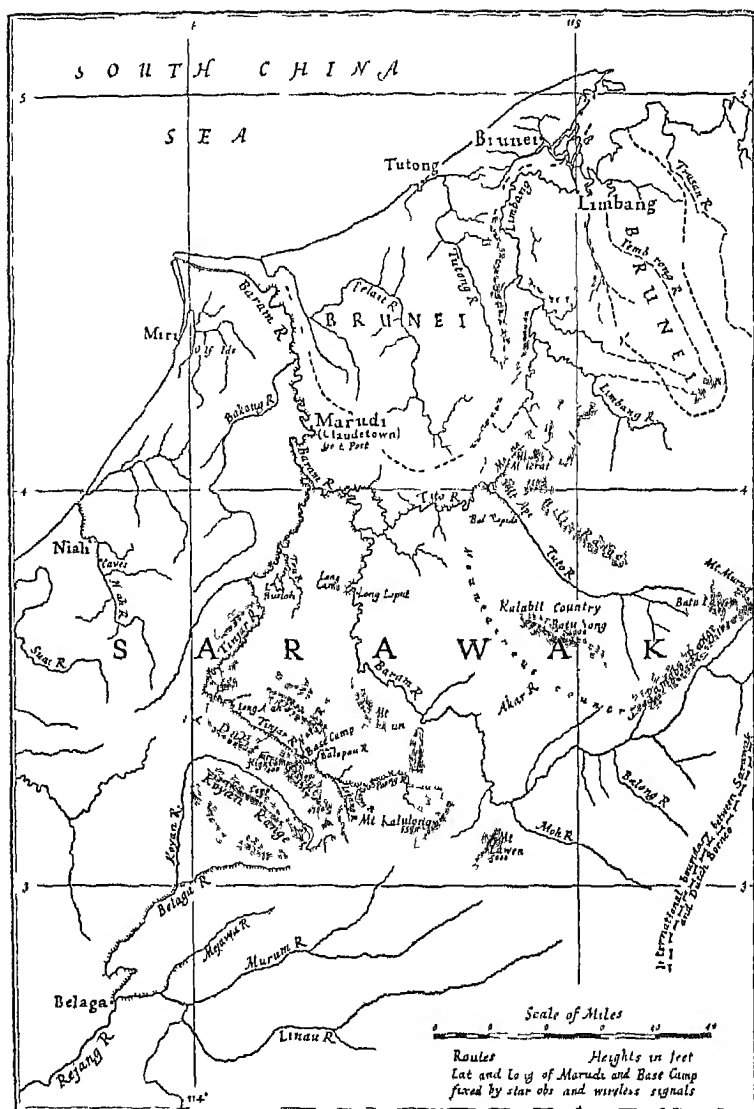
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REMEMBERED JUNGLE

By

TOM HARRISSON



Expedition's Map of area investigated in Sarawak

(Reproduced by permission of the Royal Geographical Society)

BORNEO JUNGLE

REMEMBERED JUNGLE

THIS is a book about Borneo, and especially about the Borneo seen by eight people from Oxford and Cambridge, average age twenty, who went exploring there. I organised this particular Oxford University Expedition, though I was at Cambridge (for one year, quite long enough). I thought I had finished with the place when we came back. But apparently not. We planned this book out there, one part by each of us—Borneo Essays. Since then, the Wander Bug once established, we have between us been most of all over the world, America, Greenland, the High Arctic, the South Seas and Spitsbergen, Mount Ruwenzori, East Africa ; one-year and two-year expeditions written in three other books, etc. And one has died. So it has taken us five years to get together this book. It is no better as a book than was the expedition as an expedition : it is worse. But each has its points. And at least we can claim it as an exceptional effort—for of the numerous University expeditions before and after, few, so far as I know, have been in a fit state on their return ever to meet again without uproar, let alone collaborate closely. It is the same with the three other expeditions I have been on—no chance of a sociable pint after them. If you don't want a lot of enemies, don't go on a lot of expeditions. The way a fellow cleans his teeth or rubs his ear or handles your only and rain-worn copy of *Wuthering Heights*—these things mean nothing in England, but

after a few months of mosquitoes, odd food, extreme cold or heat, they magnify to mania size, so that you will surely pick on at least two of your companions and hate them and hate them and hate them—not so much for them as for small surface bits of them. Don't be deceived by these tales of expeditions getting on wonderfully. Some of them pretend that. It's propaganda and meant to be frightfully British. Really, it's British to feel all het up like that in the wilds, but to sneer and bear it. Some bitter hatred is essential and valuable in every unit of young people working very hard, in difficult places, on one common plan. It forms a nucleus of fire, concentrates the worst in each one on to something understandable and immediately at hand for the loathing. It does not become an over-life-sized thing, and does not interfere unduly with their work.

In Borneo we somehow escaped most of that (don't be deceived by these tales)—though, of course, it was there (that's more like it). But "somehow" was mainly, I think, the staggering richness of all our experience there and difficult to put on to paper after an interval of years. Of the party only two had been in the tropics before, both in South America, and there is nothing American to compare with the plant and animal life, the terrific native colour and vitality that we found in Borneo. Above all, it was the natives, the Punans and Kenyahs and Kayans, who kept us extrovert and gave us experience which, thinking about it now for the first time in years, was surely the most vital and valuable any person of twenty could have had. There were nights of sword-flash, hung ear-rings of brass pulling the lobe to shoulder-height, leopard cloak, betel nut, borak and mad whirling dancer that telescoped us beyond small satisfactions, giving to each of us a permanent treasure of feeling, but one with which (it seems) we cannot be content, but must seek further, going slowly on with our secret orang-outang knowledge.

WHAT'S BORNEO ?

None of us knew what we were going to do. Few "explorers" can have much imagination. If they had they would see the long vistas of discomfort and effort and overmuch exercise. They wouldn't go. That is one reason why there isn't anything clever about being tough in this way. All the time you are really tough you are more or less regretting it and wondering why. But next time, you fall for it all over again. It's very like love ; or like poetry. Explorer toughness is mental, not physical.

Borneo—and especially the part we were going to—is generally known for three sorts of thing. We aimed for the centre, unexplored country in the middle of these :

1. Head-Hunter.
2. White Rajah.
3. Argus pheasants, rafflesia, tarsiers, oil and orang-outangs.

HEAD-HUNTERS.

If at any time you make polite tea-table talk about cannibals, people link to New Guinea ; simple head-hunting (which doesn't simply mean eating the corpse), and they click on to Borneo. Maybe twenty books have been written by people passing along the coast or going up a river a bit, with head-hunters somewhere in the title. Mostly in America, and lousy stuff. The great head-hunters who form the basis of the tradition are the Dyaks.

Into the midst of these head-hunters came the White Rajahs. We'll come back to the head-hunters.

WHITE RAJAHS.

The present Rajah of Sarawak is Old Etonian Excellency Sir Charles Vyner Brooke, third in the list of White Rajahs. He comes back each year (by air :

9000 miles) for Ascot. Of three "Princess"¹ daughters, one married Jazh Rajah Harry Roy, another He-Primitive All-in Wrestler Bob Gregory.

Sarawak is unique as an absolute monarchy, run for nearly a hundred years now by an English family with absolute authority, no appeal from their decision on any subject. Inside Sarawak, Brooke is boss, and the whole of Great Britain can't tell him where he gets off. He controls with a handful of European officers. His family brought some order into a land of chaos and sudden death—a nation of "savages" in a land of jungle about the same size as England, with great mountains (hundreds higher than Ben Nevis) and important rivers (five much larger than the Thames); before anybody gets into the country at all, he has to be O.K. with the Rajah.

ARGUS PHEASANTS.

This is about the nicest-looking bird on earth, with huge "spectacles" of delicate grey, black and pearl shades all down long wing and tail feather. Displays by striking its head through its wings. It is mainly nocturnal, very shy, and had never been really observed by white men. To see it would necessitate making special platforms in tree-tops over stamped out dancing-grounds in remote jungle places. This was a lure for the bird man.

RAFFLESIA.

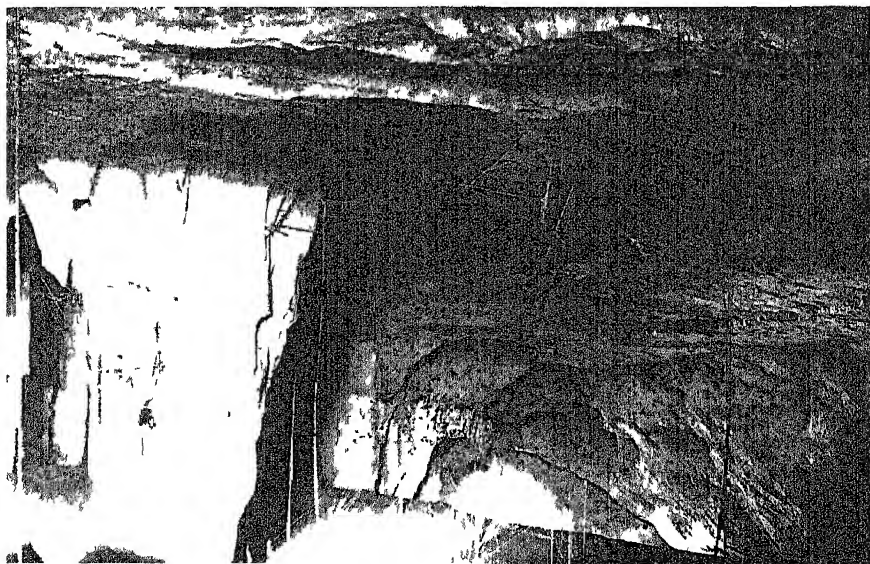
Called after Raffles, who got Singapore for England in rather the same way as Brooke got Sarawak for himself, this is the oddest plant on earth; the plant itself is parasitic and grows absolutely as a part of its host, the root of some tree in the forest. Occasionally this invisible plant buds off a small, round berry, which grows to the size of a child's head out of the root, and breaks into five great petals with a circular bowl in the centre in which are the sexual organs. The flower alone may

¹ No longer to be called Princesses by proclamation of the Rajah.



The verandah of a long house. They were often several hundred yards in length.

A birds' nest cave with the slender poles up which men climb to collect the nests.



be eight feet across, and startling on the dark forest floor in wine-coloured, fleshy and thick squashy leaves ; they stench like all the decay in the district.

Rare it is, a lure for all botanists along with the orchids, rhododendrons and pitcher plants of numerous sorts and many as yet unknown, eagerly awaited by growers in England.

TARSIERS.

The tiny little tarsier is close to humanity, too, something after the style of one of those tragic little fluff monkeys of dark chocolate whose fate is everlastingly, or so long as the spring lasts, to go up and down, down and up, up and down the pink stick of the toy-vendor hard by the entrance to the London Pavilion in Piccadilly Circus. Tarsiers have huge round eyes and tiny heads, long prehensile toes and tail, move like an aged negus or a fœtus that has never been born. No one knows if the queer querulous squeakings heard at night are made by tarsiers : it is very difficult to find one at all. No one had so far succeeded in keeping one alive in captivity. They simply stare out and slowly die. This was a lure for the live animal-seeker. And in mammals, Borneo is the most interesting of all places, with the remarkable false-otter, the vile porty-looking proboscis monkey, tree-shrews, tiny tufted squirrels and magnificent fan-tailed squirrels, flying squirrels, blind Albino bats, pigmy rhinoceros, leopards, elephants, civets, the weird pangolin (scaly ant-eater) and, of course, orang-outangs. It's like that with everything, rich in life. But first there are riches of another sort—oil. Great finds of oil in Sarawak, and others very possible. More of this.

ORANG-OUTANG.

After the Rajah, the most interesting thing socially is orang-outang. The only place in the world you get these No. 1 Zoo attractions is Sarawak. Orangs really

are extraordinary animals, so near human that the native name "orang-outang" means "bush man."

They are confined to one small area of Sarawak between the Limbuan and Papuas rivers. They are or were, not afraid of man, trusting, tame, slow and easily seen, with their great chestnut, shaggy fur and their wide platform nests in the forest canopy. But, like everything else, lovely or unique, white men couldn't let that be. As with his head-hunters, so with his orangs, the Rajah had to step in and stop scientists, naturalists and nature lovers from getting in among the orangs. To give you an idea of what these people did to the orangs here, and what Beccari, great naturalist and traveller of last century, wrote of his Sarawak nature study, I'll quote his own version. Read it and see how you feel about civilised man compared with the ancestral ape :

"Looking intently, I at last made out something like red hair amidst the dense foliage. There could be no longer any doubt—it was an orang recumbent on its nest. The creature was evidently aware that it had been discovered, and yet it showed no fear, nor did it attempt to fly (*sic*). On the contrary, it got up and looked down at us, and then descended lower amidst the branches, as if it wished to get a better view of us, holding on to the ropes of a creeper which hung from a branch on which it was first squatting. When I moved to take aim with my gun, it hauled itself up again, pushing forward its head, to look at me as it held on to the branches above with its hand. It was in this position when I fired. I saw at once that I had wounded it severely, for it threw itself back into the nest, bellowing loudly. At this moment, in the midst of the branches, I caught sight of a second orang on another nest. Although I couldn't see it well, I fired ; the explosion frightened it, and it left its nest and climbed towards that of its wounded companion, whose lamentations were painful to hear. As soon as it caught sight of it, it fled as if frightened, and hid so well among the branches that I saw it no more. It was a youngster, possibly the offspring of the one I had shot.

"I was thinking of having the tree cut down to get the wounded orang, when, to my surprise, it got up, endeavouring

to escape, when a second bullet brought it to the ground. It was an adult female, it was so badly injured in the forehead by my two shots that it was not worth preserving."

At dawn next day the great Italian hears an orang bellowing in the distance, and soon he was in luck.

"I perceived something reddish moving on the top of a big tree. I fired at once almost at random, and, to my surprise, a very small orang fell to the ground nearly at my feet. Immediately after, a second one, of much larger size, appeared and climbed up the very same tree. It was soon hidden among the branches, and although I fired twice when I caught glimpses of the creature, yet both shots missed. Presently we saw him higher up, looking down at us. This time my bullet took effect, and the animal fell, mortally wounded."

And almost at once he sees another, misfires twice at a big one :

"But it did not go very far, for orangs are not afraid of man, and when I was ready it was climbing up the trunk of a large durian. My first shot appeared to take effect on its leg ; it stopped climbing. . . . I fired again, bringing it to a standstill. Just as I fired, a small orang appeared, but bolted into the foliage, where I lost sight of it, for my men directed my attention to a huge one on the very top of the highest durian. I fired several shots, if only to drive him out, but could not say that I had hit him. As this was going on I perceived another big orang on a branch of the same tree. Had I had time I should certainly have got both of them, but it was getting late, and we had to look after the first one I had wounded, and which had not been seen to move from the small durian. . . ."

He turns home and he is delighted to see more apes on the way :

"I caught sight of the first quite near a small tree. I fired twice, but did not succeed in killing it. As I was reloading, a second suddenly appeared, not twenty paces from where I stood, and only about fifteen feet from the ground. The jungle was young and very thick, so that when I had finished reloading my gun both orangs had disappeared, even the first one, which I felt sure

I had hit. But "Kap," the small dog I had with me, had followed the latter and enabled me to come up with it. As I did so the huge beast turned, and it fell dead to a bullet in the chest. I should particularly have liked the skin, but I had to abandon both it and the skeleton and content myself with the head alone.

"It was quite dark when we reached the camp, loaded with orang-outangs, drenched to the skin."

So the merry head-hunter goes on making us understand about Mussolini. After a lot more of it, he gets to this cracking conclusion :

"All told, I had got either the entire skeletons or portions of twenty-four individuals. Later, Atzon brought to me several other heads from the same district. But with all this I came away without having been able to solve the doubts I had regarding the species or races of orang-outang."

Hoorah for systematic collecting !

This land of head-hunters, black and white, exotical orchids, weird plants and wild animals, was our objective. And Beccari's wonderful result of such a monstrous slaughter leaves me to explain, without delay, that we too were head-hunters, though on a smaller scale. The *British Museum* and the leading scientific societies financed us, largely so that we might collect hell's own series of all sorts of animals and plants, so that someone might or might not be able to come to a conclusion regarding species or races. We were professional head-hunters under the red gangrenous banner of "Systematics," basic branch of science. I am a scientist. It is necessary that before you enjoy the delightful laughter of the lovely native girls or the delicious flavour of mangosteen eaten far from a fork, that you appreciate what it is. I dare swear no one dare tell you before. Most of us are dependent on this sort of thing to enable us to carry on. Happily I have escaped into exploratory independence by learning to write tight, and to travel light, living near native. But this head-hunting business cuts at the whole root of much contemporary exploration.

WHAT'S EXPLORATION ?

For what—after all—is exploration ?

It used to mean finding a continent. It has shrunk now to seeing a new mountain and to reaching the top of it. Everest can hardly be called exploring any more, and even the Antarctic is becoming rather thin ice. In practice, exploration now means pushing farther into areas already known at least upon the fringes ; the entry, by the Leahys and Hides, into the Central Plateau of New Guinea makes not only the disclosure of a perfect Lost World in the Stone Age, but also and inevitably the last of the Stone Age. Already most places are passing out of the Iron Age into the age of aluminium and bomb. The age of electric hell is here. And this magnificent phase of civilisation, of Guernica and Hankow, has been made possible through the research of scientists plus the way in which politicians and socially conscious persons and business men have used the achievements of scientists. This spirit of mental, scientific exploration and material, unscientific exploitation flourishes in amongst us and extends also into exploration in the topographical sense.

Some of the oddest of us, the social misfits, now, as always, crave something more, something exclusively it. That is the secret of man (inevitably labelled his " progress "), indeed of all living achievement. We are denied the magnificence of piracy or terribly dangerous travel. You can travel almost anywhere safely now. You have to make it difficult—a fact first conspicuously revealed by Mr. Fleming, who combines (with such estimable ease) exploration and exposition, primitive society and Book Society. If he had been on a real scientific expedition, he would have saved me a lot of trouble and space. Like the White Rajah's, his O.E. tie flashes its brilliant message through the turgid depths of the Amazon and

seven plains of Tibetan consciousness, emerges triumphantly unaware of Yogi and Empire, black with pale blue stripes. The snag about Fleming is that he has mainly debunked travel stories and toughness, not exploration. That's a pity.

So when the old generals get up and yammer at youth's dullness and fear, we under thirty may be excused a lewd titter. When any one of us drives a car dangerously fast down the Kingston By-pass, he is every bit as good a man as you were, old stickfast, when you went out to subjugate Sudanese in '80. At this time, young people are falling over each other to do new and deadly things. And the best example of that is the Oxford University Exploration Club. The O.U.E.C. sent us out to Borneo. We thank our numerous English or Bornean gods for it, as a permanent refutation of the thesis of old fossils who want to keep gutsful youth down by pretending they ought to get in among the poisoned arrows more than they do. I salute a sensible Admiral, Sir William Goodenough, who stands up for us in the *Times*—and just in time. Incidentally, he was President of the R.G.S. when we had to lecture to it on the results of this expedition, and after the lecture he proclaimed: "I'm not a member of the O.U.E.C., more's the pity, but I very much envy those who are. Speaking from an outside point of view, I have no doubt that they have, judging by the work which has been described this evening, justified their existence. The expedition about which we have heard to-night, was admirable—well-conceived, well-organised, well-executed—and you have given us a most interesting description."

But there is ONE BIG SNAG, in the O.U.E.C. and in youth exploration generally. It is the Arctic.

THE ARCTIC.

The Arctic is a racket.

Nearly all Youth expeditions go there. Every year

roughly from two to six. Each is called an expedition ; its personnel become " explorers." Young women at cocktail parties will listen to them when they are talking about uninteresting things (=main asset of being an explorer : you can afford to make no effort to avoid being a blasted bore). They do it in the name of science, poor prostitute. Her bastard children litter the snowfields and satisfy the mosquitoes each Long Vac. Each expedition comes back and gets into a lot of papers ; the leader writes a book, and there are " scientific results." In fact, in so short a time they do little that could not be as well done in Shetland or Orkney.

The Arctic they fuss about is some place north of an imaginary line, about as real and important as say the Eastic or Westic for East or West of the Greenwich meridian. The word has got a value for North Pole, Baffin Land, Ellesmere Land, Novaya Zemlya, explorer places. No ordinary University Expedition can get to any of these. They go to Greenland and Spitsbergen and Iceland. Cook's Tours do the same if enough folk will pay to make it worth while.

Of course, the Arctic is near, easy to get at, obvious, and with a glamour value. But there are equally unexplored parts of Africa and Asia that are equally easily accessible, if the same amount of money is spent. For these Arctic boys charter ships and planes and intricate machinery, take up to fourteen people. It does most of them good, better than the South of France or the Rhine valley. But they learn only to know themselves better, not to know other sorts and lives—which can be the best lesson of any travel, and the finest basis of intelligent pep. The Eskimos in those near-Arctic zones, if any, are too frequently controlled, too decayed to be of a strong value. The life and colour is largely a subtracted version of the Highlands. It is only a two-year expedition, wintering through and forging north, that can justify all the fuss.

The few-month Arctic expeditions get financed, often very adequately, to spend a few months somewhere North of the Circle. The first Oxford Expedition I went on (age eighteen) was one of these. All I got out of it was a great deal of experience in carrying a two-gallon tin of kerosene two hundred miles and a great contempt for the toughness of rowing men and the scientificness of lecturers in botany when faced with months of similarity and sunshine. My only useful memory is of a reindeer. This animal, the only one we came across, was standing by a dwarf birch on the high tundra. We came over a cliff, and suddenly on to it. The graceful animal stared for several seconds, and then trotted rapidly away. And all five of us (for three had already turned back in despair at this ridiculous journey) decided there was something wrong with that reindeer. We naturally concluded that any large animal to be found on this land was ill or out of its senses. The expedition produced no other understandable results, except that one of its members was an Oxford biology don, C. S. Elton, Chairman of the Exploration Club. We shared a tent, and when we got back he asked me to react against the Arctic by organising an expedition to Central Borneo. This was a swell idea, but it very soon hit several snags. The first one was financial. The Arctic had then got almost a monopoly on youth expeditions, and they had proficiently canalised the available monies in certain directions. To go to the Arctic you could get money for novice undergraduates to do "ecology," which is a sort of scientific natural history. To get enough to go to the tropics, on which one-fiftieth of the amount of scientific work has been done, you had to ask it for collecting, which is unscientific, unnatural history. Of course, if your tropical expedition planned to get on the snow and ice almost at once, to some Himalayan or Kilimanjaric peak, that was different, and more easily financed—you get into Arctic-itis again above ten thousand feet.

We did not want that. Though we aspired to climb several new mountains as a side-line, what we were after was to study and understand the teeming life of the forest at river-level and up into the 4561 feet mountains with gigantic rainfall and humidity. That must surely saturate all life into new forms, some of which were already known to be remarkable.

Now the British Museum were very keen on that sort of stuff. The B.M. is very keen on any new specimens for that matter. All the museums I have been associated with (five) have means for accumulating specimens. It is indeed their life-blood—the continual influx of specimens; failing good ones, bad ones will do. Their life is an unthinking bloody flux of slaughter. To the B.M., the typical Museum, everything is grist to the systematic mill. They want specimens; what happens to them, who looks at them, is irrelevant. Systematics equals the study of specimens as material for classification into order, genera, species, sub-species, etc. Result: the common wren of this country is called *Troglodytes troglodytes troglodytes*; comment: the wren is not a cave dweller.

The average Museum official's ideas of life are limited by dead objects laid out in orderly rows in disorderly cabinets. To him, this is the end and aim of knowledge. It is life, science and art. Read, for example, the first sentences of the B.M.'s Instructions for Collectors—No. 2:

“A little patience and a little practice are all that is required to make a good skin of a bird. Also it should be remembered that no more time is wanted to make a *good* skin than a *bad* one. Thus it should be the aim of every naturalist to attain perfection in the art of preparing specimens.”

That should clear up this fuss about Art *v.* Science once and for all, while the original definition of a naturalist as one who should aim to attain perfection in preparing specimens (for the B.M.) is ideal. And here is something so easy and yet art; art for every man? In

the B.M. they do really think more in art than science.

The B.M. rapaciously competes with other museums and there is no proper integration of collections in the country. Scores of persons had been collecting birds for Lord Rothschild's wonderful Tring Museum for years, supposing it to be permanently available to those interested. Rothschild sold the lot to America. Such material should have been, from the first, in the B.M., which should contain all type specimens available in this country, *i.e.* the original specimen from which a new species is described, and which thereafter must stand as the basis for all comparisons in the erection of any parallel new species. The muddle caused by types is enormous enough, anyway, without one having to go to a little provincial museum to see the type of some remote Asiatic bird which happens to be there because the curator's wife's uncle shot it in mistake for a Boxer.

No one could honestly decry the need for a great museum and a great collection of animals and plants from all over the world. Systematics is indispensable and essential to all more intelligent work. But the need to add considerably and promiscuously to those collections, especially in the fields of vertebrate zoology (birds, mammals, fish, reptiles, etc.) is now slight. . . .

And in insects and plants there are vast collections accumulated in the B.M. that have never been worked out and perhaps never will be worked out. In the cellular labyrinth of the department of entomology there are boxes upon boxes of insects from all over the world that have lain there for years. There are probably thousands of new specimens amongst these. The persons who collected them are often seriously held up in publishing their studies of insect ecology and habits because the systematists have not identified their specimens. Maybe the Museum aren't to blame—they say inadequate staff; the dark corridors are lit with pale faces. The puzzle is



Wild cat of Mt. Dulit.

A new sort of flying squirrel.



that they keep on shouting for more specimens and more and more. We answered their shout with nearly a million! A mere drop in the ocean of de cease.

This B. Mania is B. Futile. It is hindering the proper expansion of scientific exploration. It exerts constant moral pressure on young explorers applying for funds (to other organisations) to collect for it.

They themselves seldom give more than a hundred pounds, but if you want to get a thousand you usually need their approval.

There are very few other public funds available. So you may take it that if you want an extensive comprehensive expedition either you need a rich backer or you have to sign the dotted line.

One alternative is to take rich young men along and make them pay enough to cover the cost of several persons. This is all right until you start the field work. Then the rich young men are generally a blasted nuisance and sometimes manage to wreck the whole show.

And secondly, if the expedition aims to be a competent party and make a real animal, plant and ecological study of one area, then sign up with the B.M. and the rest should be easy. There are no funds given freely to study the life-history of monkeys, sex-physiology, bird-song, insect flight, the influence of light on behaviour, etc. etc. You have to sneak that stuff in amidst the flashing scalpels and arsenical soap.

Anyway, we signed up in the usual way, and so got money thus :

British Museum	.	.	£100
Royal Society	.	.	125
Percy Sladen Trust	.	.	500
Royal Geographical Society	.	.	100
			<u>£825</u>

This was considered very nice going indeed.

But we wanted £2500. The point was, though, that

that £825 was not simply £825, but also four marks of approval from the four all-important organisations. With them in the bag, we could approach anyone and get away with it. After that, it was possible to get money or goods to the equivalent from all sorts of interests—I.C.I., Cadbury's, Oxford University, Magdalen College, Lord Riddell, Lord Tweedsmuir, Lord Howard de Walden, Major the Hon. J. J. Astor, the Rajah, the *Times*, Fortnum & Mason. I immediately contacted Sir Jeremiah Colman, Bart., whose acres of hot-houses at his lovely Gatton Park, Surrey,¹ stagger the feet, while the gigantic marble hall pulverises, and in the living-rooms priceless paintings of all schools and times crowd through the bric-à-brac into the stranger's fleeing æsthetic sense. I wrote to Colman and said we were going to Borneo and that those societies were backing us. Could I not see him with a view to possible co-ordination with his (orchid, not mustard) interests. Interview at city office—Sir J., a little man, kindly and lively and old, orchid in button-hole. We chatted, he telling me how often he had helped expeditions and had got nothing out of it. Orchid-collecting was very difficult, and very skilled, especially getting them home from as far away as Borneo. He depressed me all right. I had gone there meaning to ask him for £25, but now decided to drop to £20. When we came to the "how much" I hardly liked to ask for that, and so he said: "Well, I'm afraid I can't do much at all, things being as they are. I'm afraid the best I can manage is £250. Any good?"

It was any good, although another collecting obligation. I'm afraid his gloomy prophecies as to getting the plants home alive were supported by our experience, though some magnificent specimens, orchids and pitcher-plants, came through all right (by air from Singapore) and have been exhibited and incorporated in English orchid-growing—a wonderful cult

¹ This has since been burned, raising a puzzle of marbles for me.

that needs sociological analysis. I also had an amusing lunch and argument with Balliol's (now L.M.S.), General Sir Harold Hartley, in the Athenæum Club as to the value of taking his son, head boy of Eton, on the expedition. The General valued him at £150, I stood for a higher figure. We closed at £250 (he to pay me) in the coffee-room amidst an interested crowd of overhearers including Dean Inge and Julian Huxley. He was worth a lot more than £250, though he has since been twice to Greenland.

FEATHERED FUN.

Hartley was assistant ornithologist. Between us we collected, believe it or not, 2000 birds ; 13 new forms—none of them identifiable in life, only by trivial differences visible when you have large series from different localities compared side by side in a museum. When I think of the time I spent skinning and sexing birds in the stinking heat and sandflies, I wonder why I never ate the arsenical soap and made an end of it. If one is aiming to do real scientific study work in remote places, this collecting comes like a shadow and becomes an obsession—once started you cannot stop. It is almost a tragedy of youth. Once started you cannot stop and our joy is that our expedition partly escaped from it. You know that one of the species of a bird from one locality is of little use, that the museum wants a "series," and as there are over 600 different sorts of birds in Borneo, let alone 200 mammals, about 300 reptiles and Batrachians, and almost unlimited insects and plants, no one could ever reach the end of them. The vistas of collecting that unfold are thus endless and the fascination of hopeless effort to conquer them becomes a terrific distorted reflection of the whole effort of Science to conquer Nature, indeed of *man to conquer mountains*.

We got it twice over too. One of the big lures for grants to our expedition was the inspiration of the

mountain forests, where there is known to be an unique fauna and flora, almost entirely unlike that of the lowlands. And so we had to do our stuff twice over, at river level and then at Snowdon level. We did so in June 1932 to January 1933. The only level to which I did not sink was that of the famous soldier who pays £100 for collections of the ectoparasitic lice which frequent the feathers of birds; while I also resisted the gentleman from Somerset offering £10 for snails. The B.M. had a monopoly on all collections of dead things, anyway. And the Zoo, contrary to general belief does not (or did not at that time) have funds available to assist external expeditions.

Of nearly all those birds Hartley and I collected there are already extensive series in the B.M. and other museums—Singapore, Kuching, New York, Buitenzorg, Amsterdam and Naples! There is a collection of over 45,000 bird skins in Kuching, the out-of-the-way capital of Sarawak, but read what its Curator wrote back in 1914; it puts the position in a coconut shell:

“The papers on Bornean Birds are very numerous; the most important work being that of Count Salvadore, written in Italian and published in 1874. The late Mr. R. Bowdler Sharpe, for many years on the British Museum staff, contributed a great number of articles on the birds of the country, dating from 1868 down to 1909. The magnificent collections formed by Whitehead on Kinabalu were described by Mr. Sharpe.

“Among the more important collectors of Bornean birds, mention may be made of the early naturalists, in Dutch Borneo, Muller, Schwaner, Croockewit, Diard, Schierbrand and Henrici; in Sarawak, Hugh Low stands out as the earliest collector, followed in Labuan and Bandjermassin by Motley in the 'fifties. Wallace, the veteran naturalist, was responsible for a few additions to the list about that period. The Italians, Beccari and Doria, followed in 1865-7 with a fine collection obtained in Sarawak. Among the recent collectors we should remember A. H. Everett, John Whitehead, Treacher, Pryer and Usher, in the north; Grabowsky, Breitensteier, Fischer, Guillemard and Lemprière in

Dutch Borneo ; while yet others have been responsible for the discovery of a few species new to Borneo."

After reading that, I think of the fact that no one ever raised a squeak against any of this expeditioning, this vast accumulating of invisibleness. Yet when my friend, Charles Madge, and I started Mass-observation—the scientific study of ordinary things in English human life—in 1937, the squeaking was incessant, the charge of frivolity in collecting facts of contemporary life was emphasised *ad exceedingly nauseam*.

God knows how many collectors there have been since 1914? Even in the past few years I know of: Goodfellow, Meyer, Banks, R. B. Williams, Shelford, Hose (thousands of skins), Mjöberg, Chasen, Boden Kloss. Moulton has also forgotten Lumholtz, Keppel, Enthoven, Posewitz, Modigliani, Giordano, Giacome, Bove, Hanitzsch. He gives us a typical conclusion to all this splendid massacre of beautiful birds (all the above are simply bird collectors):

"It is a little difficult to give anything like precise figures to indicate the geographical distribution of Bornean species. The following points, however, stand out clearly and are worth remembering: Hardly any distinct and well-defined genera or species are peculiar to Borneo."

Hardly any species you cannot get in Sumatra and Malaya! and for every collector in Borneo there have been ten in Malaya. Of course the collectors favour more accessible islands, seldom penetrate into new or remote country, though ornithologists tend to be the keenest explorers and average more geographical discoveries than entomologists, geologists, botanists.

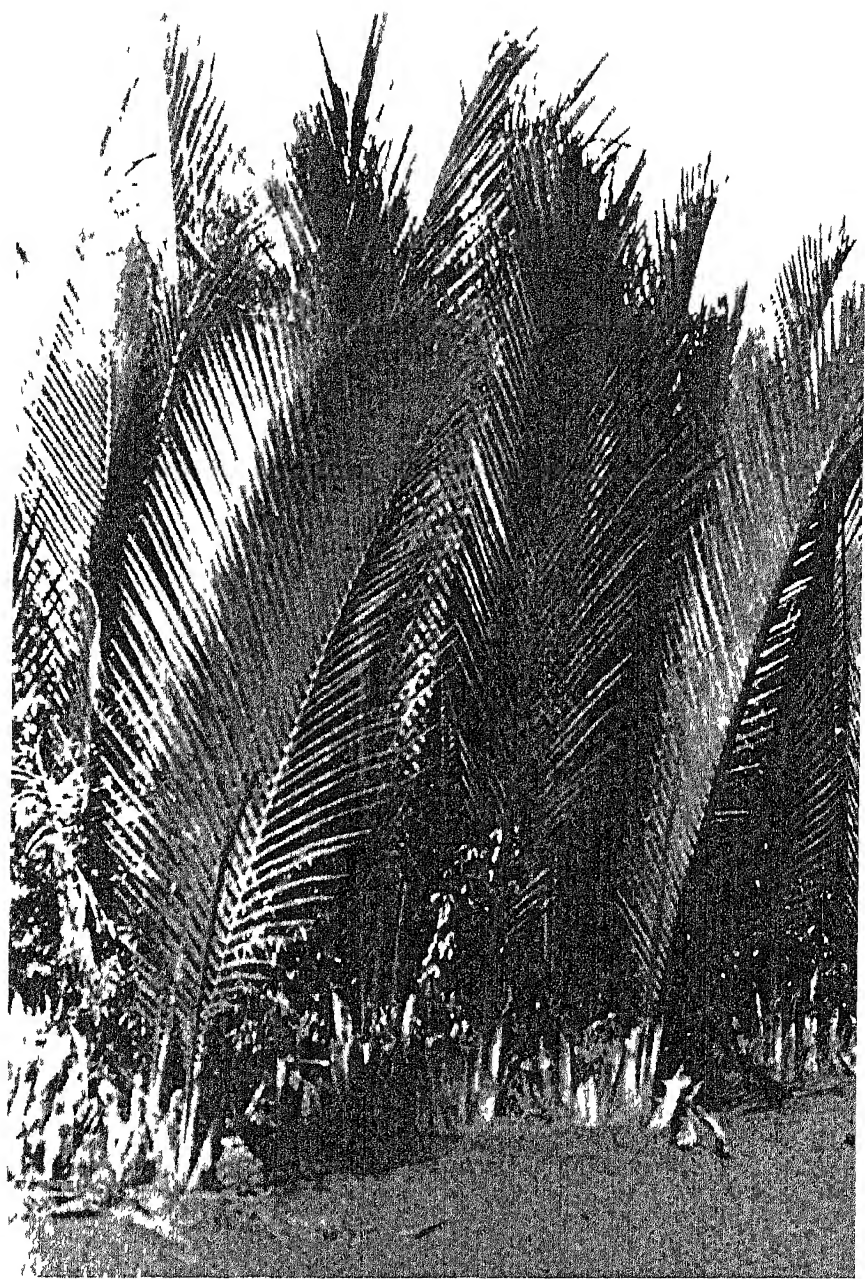
In 1914 there was little point in collecting more birds from Borneo. Twenty years later there was less point. We got two thousand, and the B.M. were delighted.

The age of collecting is over, at least collecting with

the minimum of correlated data as it is now done. But the older men keep it up artificially and by monopoly methods. It is a sexual perversion. . . . Collections were essential to give a basis for scientific research. Linnæus made Darwin possible ; Buffon paved the way for Pasteur. Every fact is significant in science. But the constant accumulation of the same fact is a waste of scientists in a world which is clamouring for a wider extension of science, arts, behaviour and mind. Systematics has answered the basic question : What ?

Modern science is increasingly engaged in : How ? Physiology and chemistry, for example, are almost wholly How ? now. But for reasons explained above, this " How ? " query can only with great difficulty be extended into the important field of tropical exploration. Indeed, in some respects it does not overlap with exploration—for answers to " How ? " can often more easily be obtained close at hand. For that we (we travellers) must, in fact, be grateful to systematics, to What, which necessitates topographical movement and research ; systematics and exploration grew up together, and both are becoming moribund together. Eventually we shall, after a long time of How, have the further data enabling us to get on to Why. For the consideration of that problem, exploration will probably be unnecessary—excepting an intense exploration of the mind.

The orthodox University Expedition is not modern at all. It is more scientific than Gorer or Fleming, but it seldom takes film camera, never sound, and it claims to be useful. But I doubt if a few thousand more specimens and more papers in the *Journal of Animal Ecology* are any more " useful " than *Africa Dances* or *News from Tartary* which reach and amuse many thousands. What is really needed is a combination of the two functions—amusing and accurate observations of reliable but readable fact, of ecology and æsthetics. Nothing is more needed to-day than æsthetic exploration, co-operation of



Nipah palms, forty feet of quivering green, by the water's edge.

poet and palæontologist, botanist and balletomaniac, survey-photographer and surrealist.

In the meanwhile, collecting for the B.M. is still the best way of seeing the world. It's the best way to be educated. But, unfortunately, in the actual process of this educating, as in most processes of education, or seeing life, it is almost impossible to see anything. Thus I trust I shall be forgiven for having apparently seen so little of Borneo—and I say this for my colleagues and myself; we only offer this volume, because in the last part of our stay in the interior, we were able (with difficulty and after a prolonged fight with the Museumites' local representative) to escape and to *live* and see and do, while even in the first months the native and jungle life was so strong and incessant that no museum-mind could crowd it out, even our ultra-collector entomologist had to establish himself wildly dancing on a three-legged table. In this book we, especially those of us dissatisfied with contemporary expedition method, though by no means writers have nevertheless tried to express some of the elements in Borneo which were not on the application for grants; some of these results, indeed, caused trouble on our return. It wasn't part of our work to spend money on entertaining natives.

But we have received few complaints from those who appreciate the real function of undergraduate exploration—the extension of an academic education which is inherently out of touch with the wide world—from live-wire dons like Tansley, Elton and Baker at Oxford; Wordie, Debenham and Odell at Cambridge; Hinks and Longstaff at the Royal Geographical Society; Julian Huxley at the Zoo. The Exploration Club does right now to insist on ecology, scientific nature study, the minimum of collecting. More funds must be made available for this purpose; it is time the Exploration Club and its annual and ever-expanding expeditions were directly and fully endowed by a few rich men,

COLOUR : JUNGLE AND BLOOD

Crazy and dying in his last letter, the great painter Van Gogh wrote :

" The future of painting is in the tropics, either in Java or Martinique, Brazil or Australia, and not here, but you know that I am not convinced that you, Gauguin, or I, is the man of that future. But be assured, there and not here, on some probably far-off day impressionists will be at work who will hold their own with Millet and Pissarro."

But painters have always been unenterprising, and loved to herd together in large groups in limited areas (Montparnasse, Chelsea) and paint the same things ; they have ignored industrialism and suburbanism as much as tropical jungle.

It is indeed true that all the important things about the life of the tropics have been virtually ignored in favour of its mosquitoes and pheasants. Tahiti is the limit of the creative mind ; there, there are beautiful women and Pernod.

No poets have written about these jungles. No poets have entered deep jungles, though passing writers (notably, Duguid, Masfield, Tomlinson and C. W. Monckton) have made notes. A great one of these, shortsighted A. Huxley, went in a boat past Sarawak, anchoring for a few hours off its oil fields.

" It was on the point of raining when we anchored off Miri. The grey sky hung only a few feet above our masts ; the sea below us was like grey oil, and between the ceiling of shifting vapours and the slowly heaving floor, the air was unbreathable, like the steam of a hot bath. Half a mile away across the swell lay the land. The dark green forest came down to the water ; and in little clearings, conquered from the trees, we could see a few dozens of European bungalows, a score or two of miniature Eiffel Towers, marking the site of the oil wells which have called Miri into existence, a few cylindrical oil tanks, like white Martello Towers dotted along the coast. Out at sea, opposite a cluster of these white drums, a steamer lay at anchor ;

she was loading a cargo of oil from the submarine pipe-line, through which the wealth of Miri is pumped into the tankers that take it to the outer—the real—world. Beyond the near dark promontory on the right we could see, far-off and sun illumined, a range of fantastically jagged mountains.”

To these far-off fantastic mountains, head-hunter land, we were going on our fantastic head-hunting.

HEAD-HUNTING, AND WHY.

There is evidence that the head-hunting has arisen in Borneo within the last few centuries. Some anthropologists derive it from human sacrifice, as a reduced form of offering made at the building of a new long house, on returning from a war expedition or coming out of the mourning from the death of a great chief. Hartley was present at one of these later ceremonies, and in his contribution he describes it in full ; he got blood brotherhood and the name Tama Paya. To-day he prizes “ T. P.” more than “ B. A.”

The classic Borneo folk-tale (strongly reminiscent of the Moses *versus* Pharaoh and Passover cycle) does not, however, derive head-hunting from a more bloody method, but from a less bloody one, comparable to the scalptaking of the American Indian.

Here is the tale :

“ One Rajah Tokong determined to retaliate on a neighbouring tribe that had killed some of his people ; and having made all the customary preparations, he set out with his followers. They started, as is usually the case when going on the war-path, just after the rice had been planted, as this is a slack season, and paddled down the river and entered the jungle. On the third or fourth day, whilst they were cooking their rice on the bank of a small brook, they heard a frog croaking, ‘ Wang kok kok tatak batok, Wang kok kok tatak batok.’ Tokong listened to the frog and said, ‘ What do you mean ? ’ The frog replied, ‘ You Kenyahs are dreadful fools ; you go on the war-path and kill people, and only take their hair, which is of very little use, whilst if you were to take away the whole skull you would have every-

thing that you required—a good harvest and no sickness, and but very little trouble of any kind. If you do not know how to take a head, I will show you.’ Thus spoke the frog, taunting them; and catching a little frog, he chopped off its head.

“Tokong did not think much of this, but one of his right-hand men, who was an elderly man, pondered long over the incident, and during the night he had a strange dream. He dreamt that he saw fields of rice, the plants being weighted down with their heavy grain, and in addition he saw an abundance of other food—sugar-cane, sweet potatoes, and what not. Next morning he said to Tokong, ‘I am very much concerned about what the frog said,’ and then he narrated his dream. Tokong still appeared to think very little of it, but the other men strongly advised him, if they were successful, to bring back one or two of the heads.

“Eventually they attacked the hostile house and killed seven people. The old man put three of the heads in his basket with the consent of Tokong, who had been persuaded that no harm could be done in trying this new venture. They returned at the usual breakneck pace, and found that they were able to travel at a great rate without much fatigue. On reaching the river they witnessed a phenomenon they had never seen before; the stream, although it was far above the reach of the tide, commenced running up immediately they got into their boats, and with very little exertion in the way of poling they quickly reached their farms.

“To their surprise they saw the rice had grown knee-deep, and whilst walking through the fields it continued to grow rapidly, and ultimately burst into ear.

“The usual war-whoops were shouted as they neared their home, and were answered by a din of gongs from the house. The people, one and all, came out to welcome them, the lame commenced dancing, and those who had been sick for years were sufficiently energetic to go and fetch water, and everybody appeared to be in perfect health.

“The heads were hung up and a fire lighted underneath to warm them, and everybody was very jolly.

“Seeing all this, Tokong remarked, ‘The frog was certainly right, and in future we must bring back the heads.’”

Some tribes, like Mellanaos—for the hinterland of Borneo is a mass of different tribes, differing little

physically, but much in tradition, art-form and hostility—chained a slave to a hollow wooden post and left him there to die of hunger ; this was done at the death of a chief so that the slave could serve the master in the other world. And the famous fat Sarawak Government officer and traveller, Charles Hose, suggested head-hunting arose from killing an enemy instead of a slave, to attend the chief on his journey to the other world. Leaves were tied around the head to disguise it as that of a slave. Be that as it may, in recent times the main function of head-hunting in Borneo has been similar to that of the jewellery department at Bravington's or Marks & Spencer's. Bringing back your head gave you as much prestige with the girls as getting a rowing blue or being an explorer. The young man who went out and got an enemy head could marry anyone available, and often his success would cause some specially attractive girl to propose to him.

For eighty years now the Government in Sarawak and elsewhere in Borneo has tried to stop head-hunting, and to-day it is the exception instead of the rule. The native life has suffered in consequence ; it is rather like stopping League Football in England—incidentally football may have arisen from the Chinese ritual of kicking the skull around. The grand old man of English anthropology, Cambridge's Dr. A. C. Haddon, F.R.S. (to whom we are deeply grateful for help and advice in several ways), was in Borneo forty years ago, when he commented :

“ I cannot refrain from mentioning what strikes one as being, to say the least of it, an illogical action on the part of the Sarawak Government. Head-hunting is rigorously put down, and rightly so ; but when the Government organises a punitive expedition, say, to punish a recalcitrant head-hunting chief, the natives comprising the Government force are always allowed to keep what heads they can secure. This is their perquisite. Surely it would be a more dignified position not to allow a single

head to be taken away by anyone in the Raj under any pretext whatever, and to remunerate the punitive force in some more direct manner."

Nowadays the Government have another business-like head monopoly. Its officers have a small store of human heads which are let out to tribes for ceremonial purposes. A suitable fee is charged, and the number of the head and date of loan recorded in a catalogue.

Dr. Haddon was also present at one of Hose's peace meetings, on the Baram River. He reports Hose's speech thus :

"Now all of you present ! see this multitude, and bear in mind that whoever breaks this oath, which has been taken to-day in the presence of everybody, does so at his own peril. Who of you would dare after this to kill anyone if he thought what the consequences would be ? It would be a matter of only a few minutes to wipe him and his people off the face of the earth. The rajah's dogs will hunt, if it prove necessary to call them out ; as is known to everybody, they require no hounding on. So remember the oath, and peace, I hope, is assured."

The same attitude is expressed to-day, for example, in the Government's present attempts to make the nomadic Punans settle down in permanent camps. Their whole unique life and culture is based on their endless wanderings through the great stretches of empty forest. They are one of the few remaining peoples of Borneo who have held on to their own culture as bushmen, hunters, blow-pipe artists, poachers and travellers ; they are probably equal with or superior to any other people on earth. For the Government, their habits are inconvenient, because they make it difficult to collect the annual poll-tax of two shillings and fourpence—largely collected by chiefs, who get ten per cent commission.

Sarawak is nowadays famous for the fact that the country is run for the natives. We had heard that before

we went there. Since then we have between us been to practically every part of the world, and therefore we can say with some authority that certainly in Sarawak the country is less exploited and the natives less interfered with by its white rulers than in any other British-controlled area.

The relations between white and black are good. But the only real contact between them is from the few white officers stationed in the sub-coastal belt, who make occasional trips inland. These officers have shown remarkably little enterprise in exploring the country. Thus the highest mountain, Mulu (height 7950 feet), stands daily sentinel behind the Government station at Marudi—not far into the interior at all—and successive officers there have classed it unclimbable since Hose's unsuccessful long-ago attempt. Yet in less than three weeks' trekking and climbing, our surveyor (Shackleton) got to the top—thus making us very unpopular with these officers! (Incidentally, if anybody else ever does reach the summit, please note that apropos of his flowery note left in the characteristic bottle, the address is now no longer Hampton Court Palace, but the Talks Department, B.B.C., Northern Ireland. Thus are the mighty mountaineers brought into tune.)

So that while this administration is remarkable in that it does not encourage white traders to go inland, and definitely discourages missionaries, it has in the past forcibly suppressed main dynamic customs and to-day adopts a positively negative attitude to native concerns. Instead of the white trader, there is the Chinaman. Instead of the missionary, there is the autocratic native policeman or government-appointed "chief." Instead of the missionaries' medicines, there are gonorrhœa and tuberculosis galore. But though whole groups and even tribes have died out, others like the Kenyahs and Kayans, among whom we shall shortly dance and drink and collect insects, have managed to develop new dynamics

of competition, co-operation and conflict, which will probably carry them through. While on the coast the Dyaks, the coastal people, who were involved in some of the Government's most bloody incidents, are, with the Government's agreement, extending their influence farther and farther inland, making long journeys into the interior to get sago, gum, rhinoceros, rubber, rattans, thus increasing the country's exports and favourable trade balance. The inland people are for the most part fully occupied with their own communal life, producing just sufficient surplus of goods to trade for Chinese ornaments or fine raiment. That is why they are amongst the most lively and pleasant of races, as we shall see ; in our subsequent expeditions, to many lands, none of us has met with nicer people than the Kayans and Punans. As the Rajah's *Hints to Young Officers on Out-Stations* says, " the natives are not inferior, but different." It is worth seeing how this remarkable toleration and black-white friendliness, special to Sarawak, grew up. It is necessary to understand it, if one is to understand the accounts of the people we met and the things we did in the interior written by my fellow-members on the expedition.

Huxley saw a score or two of miniature Eiffel Towers as he rolled in the swell off Miri. But in a country which is said to be run for the natives, the question is, How did the oil fields come to be developed at all ? In any other country this would be a silly question, and it just shows what Sarawak is like that you can ask this question there and no one thinks it silly at all. The official-unofficial answer is : " The Rajah decided to permit the exploitation of oil at Miri to cover the running expenses of the whole country." It is worth noting, however, that it was Official Hose who largely promoted the exploitation of the oil field, and that in recent years the oil companies have been allowed to carry out an extensive air survey of the jungle area inland from Miri, in conjunction with

careful ground prospecting as far as the *headwaters* of the great Baram River, at the mouth of which Miri is situated.

THE LAST 100 PER CENT. MONARCHY

The whole of Sarawak is around 50,000 square miles, and estimated at approximately half a million inhabitants. It is the only really functioning absolute monarchy left (Albania is nearly). The extraordinary history of this State began, from the white point of view, when a Mr. and Mrs. Brooke conceived (probably at Bath) a son, James, at the beginning of the nineteenth century. James entered the East India Company at age sixteen, and distinguished himself in the Company's extensive warrings. After six years he was invalided home, with a bullet through his lungs, but soon came back, this time to Malaya. (By accident he was stimulated to discontinue his service, for the vessel bringing him back from England was wrecked, causing him to overstay furlough.) Thence he drifted free-lance to Borneo, where in 1839 he found the Sultanate of Brunei in a chaos. The Dyaks had revolted against the Sultan, who sent his Uncle Hassim to beat them up. Brooke cashed in on Hassim. Hassim was tickled to death. The Dyaks were beaten. Hassim said to Brooke: "You'd make a swell Rajah." That's what Brooke thought. The Sultan of Brunei was not so sure, but fed up with that bit of territory. So Brooke got the job, and on 24th September 1841 he became the White Rajah of Sarawak, though of course at that time Sarawak only meant a small part of its present territory.

From then on, Brooke steadily expanded his influence. The Sultan of Brunei was a good deal of a damfool. He controlled Labuan Island, where there was trouble, so that Brooke took Sir Edward Belcher there in 1844, and in 1846 the Navy occupied it. In that year, or the end of the previous one, the Sultan of Brunei had Hassim and other pro-Brooke relatives murdered *en masse*. For

he felt that he had allowed the British too much power already, and that Brunei's safety and prestige were in jeopardy with Hassim as successor at his death.

Declared Brooke :

"I trust, but in vain, to be an instrument to bring punishment on the perpetrators of the atrocious deed. . . . My suzerain the Sultan !—the villain Sultan !—need expect no mercy from me, but justice he shall have. I no longer own his authority, or hold Sarawak under his gift . . . he has *murdered our friends*, the faithful *friends* of Her Majesty's Government, *because they were our friends*."

But never very trusting or vain, he quickly saw to it that the pro-British killings were turned to the British advantage. For some time past he had had the active co-operation of Sir Thomas Cochrane and other naval commanders in attacking pirates along the coast. These now collaborated in a full-dress naval attack on the capital of Brunei, gutting the place with complete success, continuing up river, destroying native ships and their crews *en route*. The Sultan sued for pardon. Then, in the words of the country's official and exceedingly anti-Sultanic historian :

"The Rajah would not see him (Sultan) until the murderers of his uncles had been brought to justice, and until he had given convincing proof of his intention to govern his country uprightly, with the assistance of advisers worthy of trust ; pardon he must ask of the Queen, upon whose flag he had fired, and the agreements he had previously made must be re-ratified. All this the Sultan engaged to do. In addition, he paid royal honours at the graves of his murdered relatives ; and, taking the most humble tone and position, gave Sarawak to the Rajah unconditionally, and granted him the right of working coal. But even then the Rajah refused to see him."

And apparently never did. The Sultan died of cancer in the mouth, 1852. As tough Italian Beccari later commented :

"Thus the Sultanate of Brunei, which fifty years ago extended

from Tanjong North over all North Borneo as far as the Sibuko River, is now reduced to the city of Brunei, and a small territory round it. What has not been ceded to or incorporated with Sarawak has become the property of the British North Borneo Company. At present Brunei has no trade of its own, and the people live miserably on the produce of the fishery."

And, in 1899, Mr. Consul Keyser wrote in a special report :

" I should here like to dispel, once and for all, the idea so often heard suggested that the Ruler of Sarawak is averse to progress and the introduction of European capital. That the Rajah is anxious to discourage that undesirable class of adventurer, who descends upon undeveloped countries to fill his own purse regardless of the result, it is true. The fate of the adjacent country of Brunei, whose ruin and decay are not entirely disconnected with the unfulfilled promises and specious tales of selfish speculators, is in itself ample justification, if one were needed, for this attitude."

Not, of course, " entirely disconnected." But that was a trivial factor beside the fact that unselfish White-Rajah's interest lay beside Brunei's, with ephemeral boundary.

To-day the first white Rajah is remembered for his great social service in wiping out the pirates. But at the time when he was so active in this respect, some of the most intelligent and humane journals and individuals in England were not quite so sure who was the pirate. Thus the *Spectator* and the *Daily News* bitterly attacked Brooke, as did the Aborigines Protection Society, and what Sarawak's official historians call " The cause of the Pirates " was actively taken up in Parliament by Cobden and Sidney Herbert. In 1850 Hume moved an address to Her Majesty, bringing to the notice of the House " one of the most atrocious massacres that had ever taken place in his time." But a Parliamentary majority were in favour of Rajah Brooke, and Palmerston described the

whole as "malignant and persevering persecution of an honourable man." Her Majesty's Government expressed approval of the activities. In general, the charges levelled against the Rajah lacked accurate information but did not lack exaggeration. On the other hand, long after the first Rajah's death, Gladstone, addressing the Commons in 1887 on the subject of the Bulgarian atrocities, said: "I cannot recollect a more shameful proceeding on the part of any country than the slaughter of the Dyaks by Her Majesty's Forces and by Sir James Brooke." A commission of enquiry was set up at Singapore, with very inconclusive results, except that thenceforth the Navy gave no further assistance to the Rajah. Shortly before his death, the Rajah wrote: "It is a sad thing to say, but true as sad, that England has been the worst opponent of the progress of Sarawak, and is now the worst enemy of her liberty."

The first Rajah retired in 1863, ill and depressed. He died five years later.

He was succeeded by his nephew Charles, who had arrived in the country, lent by the Navy, in 1852. Charles, in the opinion of a contemporary was "unlike other Brookes," very dignified and learned, speaking native dialects fluently. Gradually he went deaf, one-eyed, thus increasing his awe-inspiring personality: "Not even his sister dare call him by his Christian name."

MOPPING-UP OPERATIONS, AND SO ON.

In the years after Charles' arrival in the country, the story is one round of punitive expeditions. It is worth reading contemporary accounts for yourself—*Fu Manchu* or *The Ringer* aren't in the same street as these bloody thrillers. Trouble culminated in 1857 with the Chinese rebellion, instigated through the complicated machinations of Thien-Ti-Hueh (Heaven-Earth Secret Society), a world-wide group started in the 17th century to restore the Ming Dynasty, which had become distinctly "Trot-

skyist." In 1851 the Rajah had sentenced a leader of this society to death, flogging others. By 1857 there were about four thousand Chinese mining gold in the south-western part of the country, and one night in February a section of these, restimulated by the Rajah's suppression of the opium traffic, came quietly down river and suddenly attacked his palace at Kuching. The Rajah was in bed, but heard the noise, escaped and swam the broad crocodiled river. Quickly rallying the local Malays and contacting his nephew, who was with a Dyak force, they by happy chance met the Borneo Company's steamer, which towed their war canoes up river, so that they were able to counter-attack equally suddenly, with the assistance of grape-shot. More than four thousand Chinese scattered and fled inland, whoopingly pursued by the natives from all around, who made a field week of it. The majority of the Chinese were caught and beheaded; some, hounded for days on a hideous blood trail, got over the border into Dutch Borneo. Administrative comment :

"The insurrection was in a certain way useful in showing the advantage arising from the ethnic and religious diversities of the population of Sarawak, which, by maintaining an antagonism amongst the various communities, renders a joint action against the ruling power practically impossible."

WAYS TO WEALTH.

The Chinese were, as is often the case, the pioneers of trade and exploitation in Borneo. An embassy was sent from Borneo to China in about A.D. 971, while Chinese coins and jewellery, probably of the sixth century B.C. have been found on the Sarawak River. For centuries the Chinese have been getting *Kutch* from the mangrove tree, though it was not till 1897 that the whites in Sarawak went into the industry *via* the Island Trading Company. For centuries the Chinese have been trading their vases for native produce—even contacting the Punans,

who specialise in collecting camphor, and while doing so must not speak except in the special esoteric language used on such occasions among themselves.

Unfortunately the Chinese rebels in burning the palace, destroyed all the early records of revenue, but by 1870 it was \$122,842, by 1900 \$915,966. The Raj had then been in existence fifty-eight years ; when Singapore had been going for the same length of time, its revenue was about the same figure, while that of Penang after ninety years was only half that of Sarawak's. The Chinese rebellion also upset the development of the newly-formed Borneo Company, registered May 1856, "in order that the development of Sarawak might have financial support . . . the action of the Company was turned primarily to supporting the Rajah and to developing the resources of the country." By 1908 the Company had paid out over £2,000,000 in wages, over £200,000 to the Government in mining royalties. In 1905 the value of imports and exports was over \$13,000,000. Sago was the principal export commodity and Sarawak the biggest source of world supply, the quantity rising from about 2000 tons in 1850 to 20,000 tons in 1907.

The cultivation of Gambir was started round Kuching but did not prosper. But the pepper-vine cultivation started by the Rajah in 1876 prospered, and is now in Chinese hands. The Government had tried its hand at silk-worms in 1867, but failed from the lack of seasonality and the constant dampness. At this time, too, coffee-planting ; but the *arabica* failed to produce berries, though 650 acres under Liberian did better, causing the Government to start a second coffee plantation. Oil palm and tapioca, kapok and cacao, were also tried with limited or unsatisfactory results. But the native production of wild gutta-percha brought and still brings the Government a tax revenue, as do rattan and edible birds' nest. (The amazing birds' nest caves are described among our explorations.) Timber started to be exten-

sively exported, and white prospectors tried diamond seeking with little success. The Chinese gold workings round Kuching were also developed late in the century by the Borneo Company, but the large antimony mine found in mid-century near Kuching had now been exhausted, though antimony ore from other rivers continued to be extracted by miners, bringing the Government \$20,000 a year. The Borneo Company worked cinnabar, but soon exhausted the supply. Mercury ore was located in several areas, but this, too, was nearly worked out by the end of the century. The Government itself worked the coal-mines, and one of these produced about a hundred tons in 1898, sixty-five in 1900; the other, fifty tons daily, but after 1900 worked at a loss. Mineral oil was found before 1900, but no attempt was made to work it till the beginning of the present century, when the other resources were running low. At that time a traveller reported :

"The efforts of H.H. Rajah Sir Charles Brooke to introduce new agricultural resources in Sarawak have been unceasing, and he has spared neither time nor money. Certainly it was neither owing to want of energy on his part, nor of the active co-operation of the persons he employed, success did not always crown his efforts . . . he does his utmost to lead his subjects along the road of progress and civilisation, he is not opposed to the investment of European capital in Sarawak in undertakings of a rational kind, as has been wrongly asserted."

In 1900 four major sources of Government revenue were :

Farming of Opium	.	.	.	} \$282,535
Gaming Houses	.	.	.	
Sale of Spirits	.	.	.	
Pawn-shops	.	.	.	

Naturally the above items were almost confined to Kuching, the capital, in the south-western part of the country—its 1936 population was 25,000 Chinese and Malays; 150 Europeans.

Nearly everything that has been said about economics has applied mainly to Kuching, economic centre. It is through Kuching that the traveller on the little boat from Singapore enters the country. It is from Kuching and its near-Poona society that the wise traveller at the earliest opportunity escapes, after the important ritual of signing the Rajah's book. Here the Rajah, aided by a council of six, and the rarely convened General Council of Fifty (Whites, Malays, Natives) lays down the law. There is no appeal from his decisions.

We were fortunately able to leave Kuching almost at once through the courtesy of the present and third Rajah, Sir Charles Vyner Brooke, who placed at our disposal his large yacht, the *Maimuna*. Sir Charles, who has beautiful silver hair, was educated at Cambridge and in the R.A.F., flies to and from Singapore to England each year, discourages visitors to Kuching, married the daughter of Lord Esher who herself is air-minded. When the Rajah is out of the country, his brother, locally known as the Tuan Muda, takes his place. Like the first Rajah, sonless, he himself is credited with being the only person who ever stood up to his father.

From this tangled economic aristocracy, we can sail on the *Maimuna*, then take to canoes up the Baram and then on foot, climbing and climbing and climbing. It will now be clear, or clearer, why we have such a good time, why the natives of the interior are friendly. It will now be seen that the Government of the country, which is widely believed to be run for the natives, is in fact run for nobody in particular. Rather, it may be said that, like the great rivers which flow down and further hinder (by flooding and drought in very rapid succession—as we shall later describe) regular transport from the economically valueless inland jungles, the Government now flows quietly along with the rhythm of the oil gushers at Miri, which supply an adequate revenue, for this last of the great English feudal estates and a last great English



Subai a mighty hunter

Esquire. Our civilisation has never brought any conspicuous benefits to any "primitive" population, for reasons which I have analysed and illustrated in another book (*Savage Civilisation*; Gollancz, 1937). It is only in Sarawak that the native is under Government control and yet outside any noticeable European missionary or trader influence. Had there been gold-fields on the Kelabit plateau or new finds of antimony in the headwaters of the Baram, the story might have been different; while the centralisation of authority in one man gives no opportunity for graft or our English variety of a "word in the right quarter." Undoubtedly the violent but ill-informed attacks of Cobden and Hume also had their effect in damping down on an era when the first Rajah looked like forging ahead to control the whole island of Borneo. But the Brookes have not done so badly, starting from scratch and now in sole and independent control (for Sarawak is not in any sense a British Colony or Dominion) of a country the size of England. A grand country for any white man who wants to learn how to make friends with natives and how to travel through every variety of difficulty, with the great asset of native helpers who can be at all times relied on and who have from the start a feeling of respect for the white and yet a feeling of frank friendliness and equality. Probably nowhere else in the world are Government officials so popular and so sympathetic to native problems.

WE PLUNGE INTO JUNGLE

From Kuching the *Maimuna* took us to the oil-fields of Miri, where the white community was mainly distinguished for its entire ignorance of all the rest of Borneo and its natives, and for two charming highly bearded Catholic priests, who were good at chess.

Thence we steamed up the mouth of the two-hundred-mile-long Baram River, through boring mangrove swamps; lovely Nipah palms which stood, tall and

slender as if cut in fine metal, forty-feet fronds sweeping out from the base ; past Malay houses with platforms and resting on poles in the water ; and gradually the trees, a hundred and fifty feet high, increasing into dense jungle by the water's edge. In a few hours we came then to Marudi, sixty miles from the mouth, and the only white post on the Baram, with one white officer and a cadet.

The huge Baram watershed had been added to Sarawak by agreement with Brunei in 1882. In 1885 Brooke added Trusan ; in 1890 annexed Limbang. The Baram division is just smaller than Wales, and its headwaters are three hundred miles from the sea. Marudi, its administrative base, with a fort on a high grassy knoll and set with glorious flowers of *Plumbago*, *Bougainvillea*, and *Bauhinia*, was built in 1889, first named Claudetown after Claude Champion de Crespigny. When we arrived at Marudi we found the Government officer had pre-judged us as callow and frivolous undergraduates, and we were stationed in the house of his unfortunate cadet, Mr. D. C. White, who was exceedingly decent and helpful to us. Perhaps Mr. Pollard confused us with Somerset Maugham, as is so often the privilege conferred on a strange white man : for Maugham, telling the truth and writing with objectivity, has thus been guilty, in the eyes of all whites in Malaya, of unbearable misrepresentation. It is generally said that Maugham's story, *The Outstation*, refers to Marudi, and I strongly recommend anyone to read that story before continuing with this one ; it gets the administrative atmosphere down to a fly-button.

We left Marudi on 27th July in four long canoes with out-board motors attached. We had brought from England one swell motor designed for the job, which was practically useless. It needs an entirely brainless sort of motor and a highly patient mechanic in Borneo. The very muddy water, hidden snags and floating logs

or dopey crocodiles are constantly breaking pins and jamming the engine. Even so, it tends to be quicker and more economical to work upstream with out-board assisted by paddling.

Winding slowly up the slowly narrowing river, the jungle grew closer and closer about us, casting longer shadows from high overhead. Many sorts of kingfisher; glistening blue-velvety and purple-plush bluebirds flit to and fro like dumpy butterflies; while all kinds of fruit pigeon, fifteen sorts of woodpecker, Langur monkeys, parroquets and cigar-necked clumsy darters, illuminate every mile of the journey. Towards evening the cicadas make your ears tingle with sound, one of them so regular at six o'clock, with its noise rather like the bray of a donkey in high treble, that absent-minded white men are reminded of their race and their time, calling it therefore the "Gin and Bitters Bug." In the evening, too, out come the delicately repulsive leaf-nosed bats, syphilitic reminders of our animal past; the big "flying-foxes" flap and glide overhead with the last of the light shining through their dark membranous "wings" and bearing their cross like animated puppets of evil, associates of Snow-White's evil stepmother.

Our first night we slept in a little house on a rice field, full of teeth in native smiles, mangy dogs and an old woman dying of tuberculosis. It wasn't till the second night that we slept in one of the Long Houses that are the real social unit in Sarawak. Raised on tall poles high on the river bank with carved effigies and intricately ornate funeral posts, sloping roofs and broad verandahs running the whole length, these houses are truly impressive.

Each one is a village in itself and may be three hundred yards long. Hartley, Ford and Synge will have plenty to say about life in the different Long Houses they lived in. For the moment we need only remember the difficulty of climbing the slim tree-trunk ladder into the house, the thrill of nervous laughter as one felt one's way along

in the half-light of the teeming smoky house, cracked one's head on something, looked closely—looked into the empty eyes of a hanging cluster of human heads.

Us.

There were eight of us, all youthful, Oxford and Cambridge, crawling up this narrowing river into a green land beyond the jurisdiction of Marudi or Somerset Maugham. Technically we were explorers, and in the last part of our expedition maybe we actually earned the right at least to think of ourselves as such when back at the Bullingdon or Pitt. The selecting of personnel devolved mainly on me, consulting Charles Elton, then Chairman of the Oxford Exploration Club. For some time—as I've already mentioned—I had been fascinated by the way undergraduate expeditions nearly always came home at loggerheads. I have been on three others, and in each case will it never again be possible to get more than three of the members into the same room at one time. In the case of the Arctic show (eight people), two is the record number so far achieved, and in a subsequent-to-Borneo expedition the leader, who selected his personnel with infinite care, got at such loggerheads with one of them at once that he ordered him to leave the ship at Penang before the party ever got near the expedition ground. So I developed a crude personal theory of expedition personnel, roughly, thus :

The main cause of conflict is that the youthful expedition personnel forms within itself a social group and one which is physically highly artificial in the first place, while this artificiality is accentuated by lack of ordinary social facilities, strange environment and climate, close proximity. An intricate criss-cross of like and dislike thus easily develops and eventually disrupts. This interferes not only with the work on the spot, but also with subsequent attempts to write up results and with the natural enjoyment. My idea was that, firstly, everything

should be done to make people socialise their activities outside the expedition and on to natives—and for this purpose I quietly budgeted an extra hundred pounds for entertainment. Though this had nothing to do with the scientific results and the number of heads collected, it proved intellectually far the most valuable part of the expedition and an enormous stimulus to the steady flow of ecological and systematic work which went on day in, day out, from every member of the expedition. Secondly, that in so far as we fraternised within the group, that “nucleus of fire” of loathing, which I have earlier mentioned, should be as far as possible focused on myself. On this theory it made very little difference who one took on the expedition. The main thing was to take people who were keen to do a job of research and who looked likely to get something out of it from the educational point of view, as well as one or two persons already recognised as junior experts in some field, whose association would be of assistance in getting grants. On this principle and a subsidiary one of not having people of other nationalities who, through misunderstandings of habits and jokes, tend to develop special antagonisms and might thus become serious competitors with myself, I accepted the first eight reasonable human beings who appeared on the scene. I think I can truly say that on the expedition hardly ever did anyone get annoyed with anyone else, except when someone made a crack about Empire Builders in the presence of Moore. But I think I can equally truly say—and the others agree with me—that for days at a time I was regarded as the most unpleasant living object in Borneo. I shall never forget with what a thrill of pleasure I opened one person's diary and read a series of observations so lucidly expressed that the publisher will not reprint them here for fear that I bring an action against him and the author of this chapter. To-day we all can and all do meet, for example, to discuss this book. One member has not contributed ;

he was and is too intensely engaged in working out the expedition's systematic results.

The personnel :

JOHN FORD : (General Zoologist). Tall, "arty," moderately glad to be alive, he most likes small pleasures, *e.g.* walking slowly along, puffing at an empty pipe. Some of the best months of his life have been spent counting the number of insects per cubic foot in long grass, around Oxford, for the Bureau of Animal Population. Some of his original drawings, as well as highly orthodox prose, are included here ; later went on Synge's Expedition to the Mountains of the Moon as entomologist ; now in the Department of Tsetse-fly Research in Tanganyika.

CUB HARTLEY : Head boy of Eton ; ornithologist, charming but shy, handsome and blond. Subsequently Balliol, and been on expeditions to Spitsbergen and Greenland ; worked as a tractor-driver. Married Anne Sitwell, and is now Biology master at Eton.

TOM HARRISON : Four expeditions ; ornithologist (Pembroke, Cambridge), writing first bird book when at Harrow ; since become sociological and less anti-social, co-founder of Mass-Observation Movement and responsible for six books on English culture, appearing during 1938-9. Native speciality—high-speed kick-Charlestoning on table with simultaneous juggling.

B. M. HOBBY : Oxford water-polo and chess half-blues, entomologist ; now Fellow of Queen's. Fat, puffing after 200 yards, amusing and good at conjuring ; an enormous asset with the natives. Complete when with butterfly net.

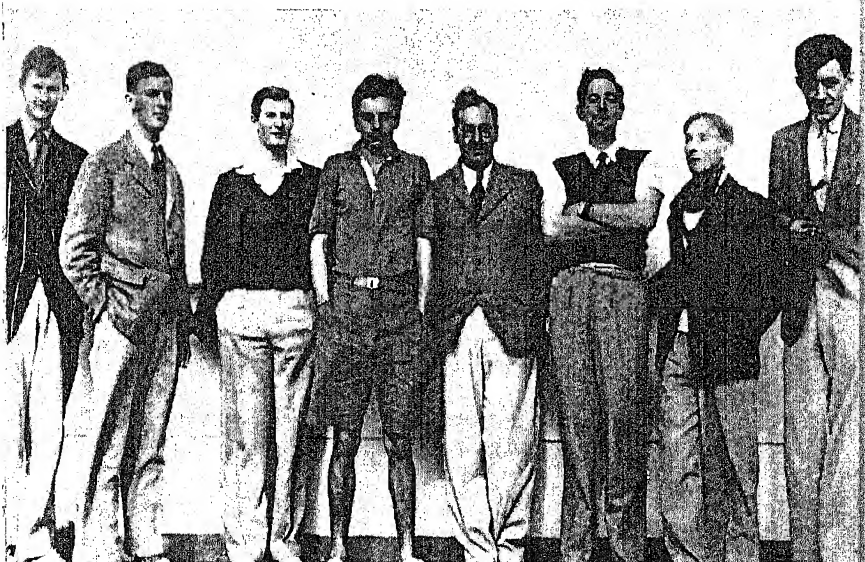
A. W. MOORE : Entomologist (Keble, Oxford), whose amazing mountaineering power at once got him nickname of "Ev"—short for Everest. Small, reactionary, a Territorial officer and flag-wagger. His guts and enthusiasm were unbeatable, and sometimes almost unbearable. His ascent of Mt. Kalulong during the later part of the expedition was a fine piece of travelling, but he easily exceeded it in the Oxford University Ellesmere Land Expedition, when he reached farthest North



The Punans.

The Tuans.

Synge, Richards, Hartley, Harrison, Hobby, Shackleton, Moore, Ford.



and discovered an entirely new range of mountains. He had just got a job in the African Forestry Service when he caught a chill and suddenly died of pneumonia in Switzerland. Our interpretation of our friend "Ev" forms the concluding section of this book.

P. W. RICHARDS : Botanist on this and on the British Guiana Expedition. Leading authority on the tropical rain forest ; now contentedly married and Fellow of Trinity, Cambridge. Looks as soft as a daisy, but is as tough as a mangel-wurzel. His only interest was in plants, on which he worked some fifteen hours a day.

EDWARD SHACKLETON : Surveyor (Magdalen, Oxford), who started his exploring on this expedition to get away from being simply the son of his famous Antarctic father—powerfully built, breezy and bouncing. He helped me directly by running the organisational problems at the Base Camp. Carried a wireless with him everywhere, allegedly for time-signals. Subsequently organised the elaborate Oxford University Ellesmere Land Expedition of 1934-5. Wrote *Arctic Journeys* (Hodder & Stoughton). Now a B.B.C. young man. Married Betty Homan.

PATRICK SYNGE : Botanist (Corpus, Cambridge) and horticulturist, cousin of famed Irish playwright. Shows similar characteristics—though, perhaps, not in prose. Passion for paintings and photography ; organised expedition to Mt. Ruwenzori, 1934-5 ; author of *Mountains of the Moon* (Lindsay Drummond) ; and shortly *Plants with Personality*, with drawings by John Nash.

In the country E. Banks, Curator of the archaic Sarawak Museum, was lent us by the Government to act as leader during the first part of the expedition. He wanted us to sit down at the Base Camp, and this was the cause of much unfortunate friction between him and myself for, from the first, the expedition had been planned to give scope to individuals and to allow for each person to make a private exploratory journey of their own. One curator being no match for eight undergraduates, we

naturally had our several ways. The Government also lent us for a few weeks its Forestry Officer McLeod. He was invaluable and really sympathetic, a grand chap.

In a final summary, after the other chaps have written, I shall try and assess the results of the expedition from a scientific point of view, and at present need only say that a long series of original papers have been and continue to be published, both by members of the expedition and by experts working on specialised aspects of their material, while our maps (reproduced by the courtesy of the Royal Geographical Society) and subsequent journeys cover new country, previously unknown to white people.

This was the motley crew which arrived at the end of July at the foot of the great Dulit range, at a Base Camp already prepared by Banks and the natives, lat. $3^{\circ} 18' 53''$ N., long. $114^{\circ} 17' 23''$ E., beside the mouth of a small stream, the Lejok (also spelt Leju), half a mile above a larger stream, the Kapah; the site was a good one, 40 feet above the main Tinjar River, the largest tributary of the Baram. The average daily maximum temperature here was $90-95^{\circ}$, though we were near the Equator and in London during that period the temperature rose once to 99° in Whitehall. Humidity was constantly at saturation-point and rainfall heavy.¹

BASE CAMP, BASIC JUNGLE.

Our arrival caused great interest among the natives, and hundreds came in to see us from a huge area. The people (a combine of Proto-Malayan and Indonesian stock) with whom we were most concerned were those living on the Tinjar, which is about 170 miles long from source to its junction with the Baram, 18 miles above Marudi and 80 miles from the sea; giving a total length

¹ Here I may partly quote (by kind permission) from a lecture that I gave to the Royal Geographical Society, outlining the camp and other organisational arrangements of the expedition.

of about 250 miles. Our camp was just under 200 miles from the sea. The total Tinjar population is somewhere over two thousand (rough estimate), living in about fifteen Long Houses on the river ; in the Dulit area there are five houses in forty miles and five others in the headwaters of the Dapoi, Lobang and Nibong. Men from all the five tribes represented in the area worked for us. On the whole the Kenyahs proved the best workers and they are essentially agriculturists, efficient and contented farmers, very hospitable and generous, though physically not so strong as some other tribes. Punans were the second most numerous of our coolies ; they carry greater weights than any others, and a Punan woman will do the work of a Kenyah man. They are nomads living in small communities in flimsy shelters, never settling long in one place, having no rice or tobacco, feeding on wild fruits and on animals snared or shot with blow-pipes. In the last few years the Government have tried to make these people settle down and build Long Houses ; they have in some cases succeeded, and even in one generation these domesticated Punans have degenerated so that they cannot compare with those still free. All Punans have a knack of going dead stupid when it suits them, which makes them useless collectors, while they are the only local people who will go back on their word. Many do not understand Malay—the other tribes speak a pidgin Malay, as well as their own language. Therefore they should not form the nucleus of a party working new or difficult country ; though they are valuable as carriers in any ordinary transport scheme. Above all, the Punans have a quality of stillness, and that even transfers itself on to the negative of any photograph. Look at the one reproduced here. These people melt into the shadows, and that is their life. Their taste for the goods of our civilisation are simple in the extreme and are well represented by the delight with which one of them collected the tops of cigarette

tins and wore them in such a way as to compel the un-Bornean nickname of "Speedway" (see photograph later).

A good many Lirongs and Sëbops, as well as a few Barawans, joined in the Base Camp; all were reliable, especially the less intelligible ones. Only when we travelled did we have much to do with the Kayans, enterprising and warlike people who originally came into the Baram from the Baloi, conquering large groups of Kenyahs.

The non-nomadic tribes have an agricultural system which consists of felling a forest area, burning as much as possible of the felled trees and planting padi (rice) in the clearing. New clearings are constantly made and old ones abandoned, so that huge areas in some parts of the country, and the riverside belt always in populated districts, have little or no virgin forest, but are covered with a thick, secondary jungle grown up from the clearings. This is an important fact for the zoologist or botanist, who must choose a suitable area with virgin forest easily available, and will find it far from easy to do so. The padi-planting also makes it difficult to hire labour from September to early November, when the men have to take their share in the work, while in July and August they are busy felling and burning. Government backing is valuable in influencing native opinion when men are needed during this period, but where possible it is better not to travel after July, both for these and for climatic reasons. We required a permanent staff of fifty or sixty natives; we solved the problem by employing men for short periods and, before we left, most of the young men in the district had worked for us at one time or another. A nucleus remained all through, including two young chiefs who acted as headmen—Morah (now chief of the whole district) and Uyau Usa, a Kenyah chief from Long Atun. Usa became smitten with a passion for a lovely girl of the Lirong house of Long Mobai, named Erum Lisim. But Erum Lisim

was much sought after, and Usa, a delightful though timid little man, suffered torments of jealousy. And not, indeed, without cause, for his lady, though making great demands upon the faithful Usa in the way of beads and cloths, was inclined to favour the attentions of a Barawan, from Long Miri, who would slip up to dally with Erum when her proper boy friend was working with us. Moreover, she wasn't kind to Usa, so that often, though desiring to do so, he was afraid to exact his dues, and it took much persuasion on our part to induce him to leave our camp by night and go to Long Mobai. Even when he did so, misfortune seemed to dog him. One night he set off to visit his beloved, accompanied by a small boy named Lidam. Next morning when they returned, we inquired whether they had spent a pleasant night. But he contented himself by informing us, in a melancholy tone, that Lidam had been afraid to sleep on the verandah. We sent for Lidam and asked him: "Where did you sleep last night?" "Oh," he said, "I was afraid of the dark and so Usa took me to bed with him." We felt that matters were not going well with Usa, and, later on, when he came back with us to Miri, his rival ousted him completely. Indeed, a large proportion of the inhabitants have committed adultery or been divorced. This was very convenient from our point of view, for it meant that several men worked for us all the time to pay fines and alimony to the parties concerned; they provided some of our best collectors, because they stayed long enough to learn more about the animals and plants than anyone else.

We had few direct dealings with the Dyaks, who occupy the sub-coastal belt inland from Malays and Chinese, but outside the aboriginal core. The Dyaks are much the most enterprising race. When head-hunting virtually ended about fifteen years ago they devoted all their genius to hunting and farming, and they thrive exceedingly. They are one of the few races

which is multiplying, and they are spreading so that they have become a political problem ; they now threaten to swamp the other and less vigorous tribes of the interior, all of whom hate and fear them.

The standard labour wage is 40 cents a day, which works out at a little over thirty shillings a month, plus rice and tobacco (made locally). Malays and Chinese expect £4 to £7, according to their qualifications. Supplying the Base Camp, which in full muster numbered nearly ninety men, was a big problem, the solution of which was successfully undertaken by Shackleton. All natives eat mainly rice, with some salt fish and meat ; we ate mostly rice, pigs, hens, eggs, potatoes, onions and bananas. We managed to get over one hundred wild pigs by hunting with dogs and spearing, with the help of two brilliant hunters, Morah and Subai, a half-Dyak and really tough egg, both from Long Miwah. Barking deer, rusa and mouse-deer were obtained in small numbers, perhaps twenty in all. Turtle was attempted, but it was very tough. The Kenyahs and Sëbops enjoyed monkeys, especially a leaf monkey, *Pygathrix hosei*, which was quite common and tasted very like pig. Bulwers, Argus and brilliant Fireback pheasants were caught in long lines of snares set in gaps along an artificial hedge ; hornbill was a popular native dish, but we found it unpleasant. Fish were caught in the curious native throw-nets and by " tuba-fishing," in which a part of the river is staked off and a semi-poisonous vegetable juice floated downstream in large quantities so that the stupefied fish come to the surface and are easily speared or caught in the hands. Ford describes the exciting business.

WHEN THE JUNGLE GETS TOUGH.

The country is full of fruit, including mangosteens, bananas and the famously smelling durian, which the Dyaks like so well that they wait for days on end for the

fruit to drop. Betel-nut, from the betel-palm, is a very important native item, playing the part of coffee to them and associated at all "whoopies" with *borak* rice-spirit and the small cigars that they make. You chew the betel, wrapped up in a wild pepper-leaf, with some lime poured from a gourd. The nut is hard for the teeth, and shatteringly bitter to the tongue. As you chew, the acid taste dilutes into a crimson fluid which flows in a delicious rich saliva throughout your mouth, making scarlet lips and blood-red teeth. In time it turns the teeth black, but every native chews betel as an essential stimulant. The others didn't like it very much, but I got to like it a lot—found it a great help, for example, in mountain-climbing. Fagged after an hour's hard climbing, five minutes chewing at betel sent me shooting up again, the stuff sending a wave through my blood as well as providing a delightful mental focus in squirting jets of brilliant saliva against green leaves or green leeches.

Leeches were very bad up to 3000 feet, and unless you were prepared to wear clothes so uncomfortable as to make it hardly worth while, it was impossible to keep them off your legs. Stand still for a minute in the jungle, and you can almost hear the gentle rustle of numerous little figures looping and concertina-ing over the ground towards you. Each at one moment thick and round, at the next stretching forward into a knitting-needle of thirst. A leech injects into your blood a non-coagulating fluid, which makes you bleed on, after the leech—a bulging and contented ball of blood—drops off for a well-earned nap.

At times sand-flies, too, make life rather unbearable, and a bite from an inch-long Elephant Ant was unforgettable experience. Our area also boasted all the other forest paraphernalia, including cobras, boa-constrictors, leopards, buffalo, scorpions and big pink centipedes.

Actually floods were the biggest problem from my

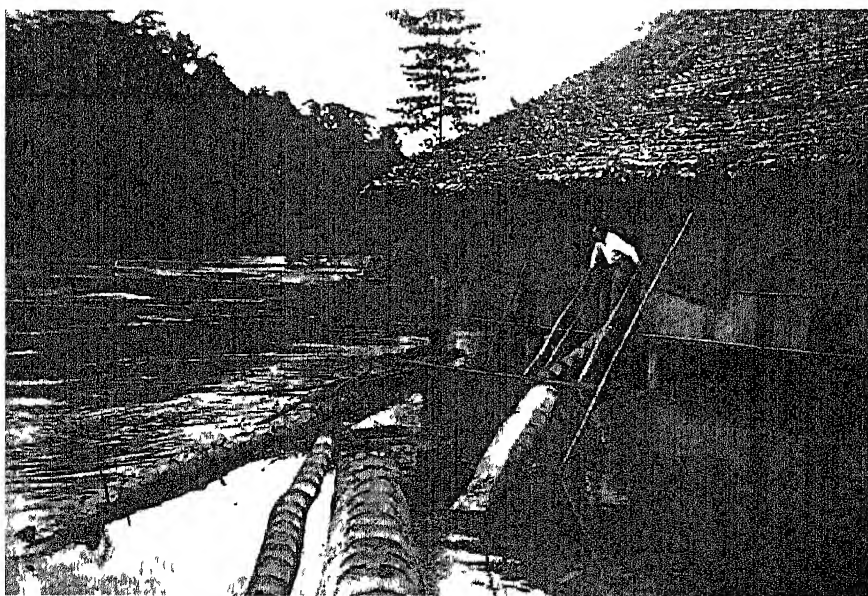
point of view (organisation). They constantly interfered with our transport system, preventing up-river travel. In a few hours the river would rise right over its banks, and, on two occasions, the camp, 40 feet above river-level as well as elevated on high poles, was threatened with complete disruption ! Here is Shackleton's account of such an occasion :

" Often the torrential rain continued for hours at a time, thundering on to the roof, the river and the trees, while through it all could be heard the whirring and occasional shrill scream of the noisy cicadas. The river frequently used to rise to great heights after these storms till it almost touched the tops of the river banks, and one morning after a day and a night of very heavy rain, during which the Base Camp had been blotted out from view, the watchers in the High Camp looked down on a river which had spread over the jungle and turned the camp houses on their ten-foot piles into tiny islands. The river looked like a great muddy ditch which had overflowed its banks. For three days it continued, and the mountain was cut off not only by the flood below, but by its own swollen stream, which, after the spectacular leap over the precipice immediately below the camp, smoothed out into a rocky brook. It was now a raging torrent, impossible to cross. I well remember the excitement we all felt as the flood rose and fell twice in the space of thirty-six hours. I was at the Base Camp at the time. In the early hours of 6th September I was awakened by a terrific noise and clatter. With extremely sleepy ideas of a native mutiny (which would be inconceivable among the natives who worked for us) I leapt up from my mat and peered out of the back of the house. The camp compound was under water, and our natives, under the excited direction of the Camp Clerk, were dragging out the petrol and oil drums from the store. After they had been assured that these at any rate would not float away, other things were salvaged, and soon the house was well stocked with a miscellaneous collection of odds and ends. Still the water rose, and as this was supply-day for the mountain camp we tried to transport some carriers and their loads by boat to the foot of the mountain. It was very difficult to follow the course of the little stream that flowed down from Dulit, since in many places



Here we lived for four months. Long Le-jok, our base camp.

The camp houses were turned into islands by flood.



it was necessary to cut a way through the dense foliage of the tree-tops. We finally reached a point above the main flood-level of the river, and there I left the party and explored upstream. But it was too rapid for walking, and eventually I turned and swam downstream. This was one of the strangest experiences I have ever undergone. I was swimming, not in the torrential stream of the little mountain river, but the swollen flood of the main river a quarter of a mile away. Several times I lost my way and by mistake swam off into the jungle. Every tree stump and branch was covered with myriads of ants, scorpions and insects of every description. I remember wishing that Hobby, the chief entomologist, was with me so that I might watch his eyes light up as some strange—and very possibly poisonous—insect fell on to my large terai hat from the tree-tops a few feet above. In the company of a large number of land creatures, I swam down towards the point where the boat was waiting. They had the advantage, however, since a number of them could climb on to passing leaves and rest there with complete unconcern. Undoubtedly they were better equipped than I was for coping with problems of this nature.

“We returned to the camp. The river was still rising, and in the middle of the stream young forests seemed to be racing along as if thoroughly bored with their previous existence. As moving targets for our rifles they certainly proved more satisfactory than the disappointingly rare crocodiles. Later on, however, the flood began to go down, and soon the river banks were clear. But, owing perhaps to a rash bet I had made to the effect that the ground beneath the house would still be dry the following morning, the tide again set against us. I won that bet, but by half an hour only.

“This time the water rose in earnest, and soon the branch floors of the native huts were under water, and the natives all had to take refuge in ours, which was built on slightly higher piles, about eight to ten feet above the ground. Soon it was impossible to leave our house except by boat or swimming. The current was running with tremendous speed in the centre of the river, and the level had by now risen nearly thirty feet. Towards evening it became clear that we should have to make plans for evacuating the Camp.

“The Penghulu from the neighbouring Long House arrived

with a large boat into which we packed our scientific instruments and collections. The water had invaded the kitchen end of the house. Those fortunate chickens which had escaped the first flood began to take refuge on the top of the house, or actually inside it, and we could see snakes and water-scorpions swimming by. Indeed, several exciting encounters took place with scorpions, one member of the expedition being chosen as a landing-ground for several of these unpleasant creatures, as they fell from the roof of the house.

"We agreed that if the water once rose above the floor-boards of the main part of the house, it would no longer be safe to remain, since the buoyancy of the wood might tear the house from its foundations, and complete destruction would follow. Anxiously we watched the ladder of the house, which was now floating almost level with the floor. Finally, the river stopped rising when it was within an inch and a half off the floor.

The following morning the flood had gone down and left a layer of slimy mud over everything. And in the afternoon a member of the expedition arrived down from the High Camp but was completely unmoved by our hazardous tale. Nor did we manage to impress anyone else with our self-evident heroism. . . ."

The expedition's health record was good. Ford was poisoned, probably by bad water, and had to be taken down to Marudi under morphia; he was back within a month. Syngé developed septicæmia in October from poisoned leech bites while at the High Camp, and had to be carried down the mountain on the backs of natives, who took turns on the ladders going down; he was treated in hospital at Miri. Unfortunately he did not recover soon enough to rejoin the expedition at the base. Ringworm, "Singapore foot" and jungle sores were common native complaints, but no European suffered from malaria (plasmoquin was taken whenever mosquitos were at all numerous). One native porter was bitten by a snake, but soon recovered under treatment. One ran amok, but was disarmed.

All the local tribes were very superstitious. Good



In the early morning, the mist rose from the forest in clouds.

and bad omens can interfere with the best-laid plans, especially when an unpleasant or difficult job is on hand. Our first week in the Base Camp was completely disorganised by an unfortunate omen snake, which was finally placated with much ceremony—hens, eggs and *borak* rice-spirit. Spider-hunters (*Aracnothera*), which are perhaps the commonest birds in the rain-forest, are the main omens. Normally, no particular notice is taken of them, but on an expedition into new country or up an unclimbed mountain, where the natives are unwilling to go, bad omens are always available.

IN THE TREE-TOPS.

It was in these conditions, on the whole about as good as one could get anywhere so near the Equator, that the expedition did the first part of its work, most of which was along the rivers and in virgin forest. The ornithologists had a special problem: to study life in the forest canopy. Observation posts were established in tree-tops 100 to 180 feet from the ground. A native went up the tree with a rope, fixing this and placing a block and tackle so that an observer could be secured in a belt. Thin trees were lashed to the main tree by means of creepers wound around the trunk; to this branches were lashed cross-wise to form a very crude ladder. With the rope, the ladder and a flimsy platform in the tree-top, all was finished and ready in a morning. We made use of no elaborate devices. When a wind got up suddenly, as it often did, it was not pleasant in a tree-top post, nor could one by any means get down in a few moments. To reach one post it was necessary to walk the last few feet up a sloping branch without any ladder or hand-rail, only a clear view of the ground 150 feet below; the native who made the post never gave a thought to this, but we gave thought to little else during the few seconds needed to reach the other side. A boy called Awang, from the house of Long Miwah, was much the best

climber ; he could go up absolutely anything, at once and without fear.

In the tree-tops you could sit on the wooden platform, and the lovely bush-tailed squirrels would come and sit right alongside you. The several sorts of tree-shrew would ignore your existence, and tree-cats pass along the branches with only a little more fear. Gibbons, the most graceful of the apes, would swing past with pendulum arms, beating a rhythm of movement out of the branches, gathering fruit or young shoots, crying their long "Wa—Wa." Vivid coloured honey-suckers, black and scarlet sun-birds ; scarlet breasted Trogons with vermiculated black and white backs and long flickering tails ; splashingly green Broadbills with their enormous beaks, that can swallow into a body the size of a missel-thrush, a fruit the size of a turtle's egg. All these would come around and occasionally alight on the end of your nose.

Within the trunks of these great trees, other fascinating animals lived. On the mountain-side the great solid-beaked hornbill *Rhinoplax vigil* with two long white feathers, black bands at the end, worn by the men as special head-dress ornaments in dancing, while a polished piece of the beak through the ear equally signified that the wearer has taken a head. *Rhinoplax* stands on the bridge between life and death, helping across only those who have taken a head—others fall into the chasm.

Hanging by all four feet against a bare stem one can hardly notice the *Colego* or Flying Lemur (not really a lemur, but *Galeopithecus*), a thick, stupid animal with greenish-grey fur and a membraneous fold around the body, on which it glides at night. In tree holes, too, are "Hairless Stinking Bats," of which the female carries the young in a pouch. The males also have pouches, inhabited by a strange species of earwig and by a wingless fly.

THE HIGH CAMP: FAIRY MOSS

During August a mountain camp had been prepared at 4000 feet. McLeod and myself occupied this for the first time on 20th August. The ascent on that occasion took over four hours. Later we got up easily in two and a half hours, the records up being one hour forty-six minutes (Banks) and one hour fifty-one minutes (Moore), the record down one hour twelve minutes (myself). These were all-out times, and no one tried them twice. The distance was at least five miles. The first two miles lay through high secondary forest, almost level going, but eight times crossing a small mountain stream, the Lejok, at whose mouth the Base Camp was placed. These crossings were treacherous at all times, and impossible after heavy rains, so that they seriously affected food transport to the High Camp; for some reason we never thought to bridge them until the last few weeks, when rough log bridges were tried and proved serviceable. Above the last crossing the range rose in a series of steep ridges with an almost unbroken line of sheer cliff running for twenty miles at about 3500 to 4000 feet, with many vertical waterfalls across its face. This cliff, and many other steep parts on the ascent also, were spanned by series of ladders to enable loaded men to travel up and down. These ladders were made by felling large trees in the required position and cutting notches along the trunk; some were near the vertical, commanding terrific downward views. In wet weather all were slippery, and it was lucky that no one fell in a bad place—three people fell short distances but were not hurt. Cheap tennis shoes were found to be the best for all jungle work.

IN THE CLOUDS

The High Camp was placed at the cliff edge in a small clearing made for the purpose. It was on a smaller scale than the Base Camp, a two-room house for the Europeans,

with one room and Malay quarters behind, and a larger single-room house for the natives. The view from this site at certain times in the morning and evening was beyond description—you could see for more than a hundred miles across the whole of Northern Sarawak and miles and miles of very little known country to the perfect mass of Mulu, the double-peaked Kalulong, to the Kalabit country, the Hose Mountains, the dome of Batu Song, and on perfect days even to the extraordinary knife-edge of Batu Lawi—all standing as islands in a sea of white cloud.

As nearly as could be judged at the time, the camp was placed on the highest peak in the range, but subsequent observation from this peak, which we named Igok Peak (after a mythical animal said to roam the mountain-top and eat solitary men, leaving only and always their hats !), showed two or three peaks to be a few feet higher, one to the south-east about 4800 feet. The range is a series of peaks distributed in a long belt with a maximum length of perhaps ten miles. Viewed from the Base Camp, Igok Peak appears as a central theme to a beautiful series of steps going gradually down to river-level on both sides ; this is a false impression, for the range is physically a simple mountain system with a central line giving off valleys and ridges at right-angles all the way. On the south side the Koyan River has cut obliquely through some of these right-angles, while the slope is sandy and much less steep. From the time of first occupation onwards the High Camp was never empty, and up to five people were working there at one time (three was the ideal number). Everyone found 4000 feet a rest-cure and mental stimulant after the sandflies and heat at river-level. But not for long. The weather routine soon got on one's nerves. In the early morning there was a perfect view. At 7 a.m. the clouds, which had held Borneo in one vast archipelago of peaks, would rise from the valley and close in upon the mountains, leaving only a cold



The High camp on Dulit ridge.

The roof from inside, made from fan-shaped leaves of Licuala palm.



mist in which one could scarcely see the precipice edge seven yards away; towards dusk the clouds would roll back into the valley. On the best days this happened. On the worst days, which lasted up to two or three weeks consecutively (August), the mist and drizzle were continuous, the visibility never more than a few hundred feet. This made survey and photographic work a heart-breaking business. It was also very cold and damp at night. No native could stay on the mountain more than ten days, and it was found necessary to change shifts every week; even so, many men got bad colds and fevers, though we gave them all available clothes and blankets.

Transport was a serious problem. All food and equipment had to be brought up to the High Camp by hand, and for this we engaged mainly Punans. It was necessary to keep twenty men on top for collecting, hunting and emergency purposes, which meant large quantities of rice. One man eats one *gantang* of rice in four days, and one man will carry four *gantangs* of rice (enough for himself for sixteen days), so that to keep the High Camp supplied with rice alone nine men had to come up once a week. This meal-portage relationship has an important bearing on all travel in Borneo, for it is clear that without an elaborate advance organisation and depot system, it is impossible for anyone to travel more than about fifteen days in an uninhabited area.

It is very difficult to get above 4000 feet. At this height the high rain forest is suddenly replaced by a remarkable flora which we called "moss forest," with trees of thirty to fifty feet; everywhere on the ground and trees there are great festoons and hummocks of moss, pitcher plants and orchids. The effect is quite unreal, and one is reminded of a fairy woodland or a pantomime scene. The moss is often many feet thick, and may cover deep gulleys and old stream-beds which are not visible

from above. Any sort of movement is difficult, and everything becomes soaking wet at once. Collecting is thus very difficult indeed, but this area is of the greatest interest to biologists, having some fifty peculiar birds and mammals, a great many peculiar insects and plants, unlike anything found at lower levels.¹ We had therefore to concentrate on this zone.

THE KOYAN : BUTTERFLY RIVER.

At the end of August, McLeod and I discovered an ideal camp site in a new type of vegetation, "dammar gum forest," at 2500 feet, near the source of the Koyan River, which rises on the south side of the Dulit range (the far side of the mountains from the Base Camp), at first flows south-west, then turns east-north-east, through a divide between the Dulit and Akumla ranges, dropping 2000 feet in a comparatively short distance to join the Belaga half-way down as a sluggish river with a total length of fifty miles. In early September, Banks (who at once got a bad attack of dengue fever) and I went down again and passed an unpleasant night in the remains of a shelter used by dammar gatherers some years before. I decided to camp here, and with the Punans and Kenyahs made in one day a good two-roomed house, though unfortunately there were insufficient palm leaves in the vicinity and the roof leaked abominably in consequence. I stayed on the Koyan for a fortnight, with useful results; Hobby and Ford came down later and found this a paradise for entomologists. The camp was a place of exquisite solitude, entirely hemmed in by trees, at the edge of a clear, raging mountain torrent with clouds of butterflies sunning on the rocks—among them many *Ornithoptera brookeana*, one of the most lovely insects on earth.

¹ For a preliminary account of some climato-biological aspects of the "moss forest," see *Bulletin British Ornithologists' Club*, vol. 53, February 1933, pp. 107-115.

SUMMARY.

These, then, are the outlines of the expedition and its scope. So much detail is not meant to imply that it is a particularly good or important expedition. In most respects, it was an ordinary routine job. In the scientific notes (end of the book), the subject of the main routine work is sufficiently indicated. From now, until then, the other fellows write each in his own way, about what seemed important to him outside this work. Most of what they have to say is derived from the last part of the expedition, when each was free to do what he wanted. Hobby and Ford went on a straightforward social round up the headwaters of one river and down another. Synge, for reasons already given, was then at the coast and went off orchid-hunting round the Niah caves. Hartley went up the main Baram, was initiated into a Kayan community, and investigated the vast bird-nest caves in that area. Richards crossed to the opposite range, *Gunong Laiun*, the highest land dividing the Tinjar and Baram rivers, and there made a plant study to compare with Dulit. Moore and Banks made the first ascent of the previously unapproached Mount Kalulong, in the remotest and least inhabited part of the country, long regarded as unapproachable. Shackleton made the first successful attempt, and extensive exploration of Mount Mulu (7950 feet) and adjacent peaks. I made a journey through unexplored territory over into the Rejang, passing down the Belaga to Rumah Pawa (the last up-river house), covering about 250 miles in a month's travels. For myself, this solo trip started me on all my subsequent activities, and made me determined never again to go on an elaborate expedition, but to aim at simplicity and at living in the land, on the land, of the land, native-wise, whether in the jungle or the Arctic or England. Since then, I have learned in four years of such contacts that the Rajah was right. We are not

superior to the Borneans, nor indeed to cannibals, cab-drivers or kings. We are different. Each man is different. And not very.

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(Many other references are easily available and, of course, desirable for any full study. Most have been consulted in preparing this section, but only the above have been actually cited here.)

BORAK AND BELLES

By
JOHN FORD

A vivid kaleidoscope of feelings and drawings—that was and still is Borneo's meaning to John Ford, general zoologist of the expedition.

Specialising in his spare time on native dancing, games and social life, he here describes these aspects of our explorations. Some of his experiences were not shared by all of us, in others we all participated. To each one of us, and to every Bornean, the sort of action and laughter and fun he describes is vitally jungle, genuine, "native."

T.H.

WHOOPEE

DEATH IN THE AFTERNOON

SNAKE MAGIC

TUBA FISHING

PADI AND PRAHUS

TRAVEL IN THE ULU

HAPPY FAMILIES



Area around Mount Dulit.

(Reproduced by permission of the Royal Geographical Society.)

BORAK AND BELLES

I

WHOOPEE

DURING the months in which the expedition remained on the Tinjar, the Base Camp at Long Lejok became centre of social life. No sooner had we arrived than scores of curious men, women and children came paddling down the river in little shallow canoes, eager to inspect us and, on the sixth of August, we held our "official house-warming." On that day, from early morning till after dark, one boat after another, large and small, drew up at the river bank below our house. Some contained but two or three men; others were larger, with twenty or thirty paddles and, in the middle, a palm-leaf shelter where sat a chief and the more important women of his household. Some had come from houses quite close by; the one-armed and garrulous chief of Long Kappa, a Sëbop house almost opposite camp; Oyang Lawek, a dapper little Kenyah chief from upriver, with many men and women, early that morning had made the two hours' journey to our camp, and, later on, after a longer and harder journey upstream, came the chief of Long Aiah, his shabby and scrofulous crowd of followers contrasting with the Kenyah smartness. Others had come longer distances; from his great "kampong" of eight houses, on the Dapoi River, came Chief Balan Deng and Bungan, his wife, a fine lady with a string of female servants; and more Kenyahs from the Paung River, with their chief, Pejingan, who, for his melancholy mien and bad digestion, we nicknamed "Old Hookworm"; and from the Nibong

River were some Punans, a strange people who seemed stricken with an "inferiority complex" and tended to avoid the society of their neighbours. For all these the return journey would be three or four days of hard paddling and scrambling over rapids of the many streams which form the headwaters of the Tinjar. And there were yet others; Barawans from Long Miri, whose chief, Tama Tiri, was Penghulu of the lower Tinjar; Sëbops from several areas, Lirongs from Long Mobai, and so on—a mosaic of tribes. The last party arrived about eight o'clock that evening, and at eight-thirty festivity began.

They were too many for our house and, after dinner, we took our chairs and went out into the clearing above the river bank. Night had fallen some two hours since, and we made our way through a crowd of shouting men, many of them already squatting on the ground in a large circle, while others seemed to be quarrelling about the right to sit near us. Eventually we found ourselves seated in the centre of a ring of some hundreds of men whose brown bodies glistened in the light of lamps and torches. It was a fine night, unusually free of clouds and wandering thunder. Amid the chatter of many voices one heard the soft twanging of strings and occasional braying of hoarse pipes.

There are many musicians among the *orang ulu*, the "up-river people," and one seldom visits a house without hearing the pleasant notes of the sapeh, a crude guitar, carved from one piece of soft wood, and strung with strips of rotang. The sound is never loud, and the tunes are always simple, often of only about half a dozen notes, played over and over again, so that the performance of an indifferent musician is often very tedious, though a sapeh, played by a skilled man, can be one of the most delightful of instruments. If one imagines a Scottish bagpipe in which the chilly note of Highland austerity is replaced by one of Dionysiac revelry, one has got some idea of the keluri, an instrument barbarically stimulating



Whoopee.



when well played. The *keluri* consists of a flask-shaped gourd through a hole in which are sealed five variously stopped pipes of bamboo, the player blowing vigorously through the mouth of the gourd, using his fingers to control the stops. The wax from a small bee which lives in hollow trees is used for blocking the leaks in the instrument. Both the *keluri* and the *sapeh* are invariably played by men, the women playing only an almost inaudible sort of Jews' harp, cut from bamboo.

Presently there were shouts from the direction of the natives' quarters, and we saw four young men struggling as if with a great burden. As they came nearer the crowd began to cheer, a loud, long drawn "Aa—ih," and we saw that they were carrying a great earthenware jar. This they placed in the centre of the circle, and, as they did so, more young men followed with another jar, and yet others with smaller jars, with pots and bottles, and even battered kettles. This was the *borak* without which no Bornean party is complete.

It is difficult, in writing of life in the Ulu, to avoid exaggerating the importance of *borak*. The toper who boasts of his capacity for alcohol is generally an exasperating person. But with the drinker of *borak* there is this excuse : that although it may sometimes be a very pleasant drink, it is, very often, utterly foul, and the man who succeeds in swallowing only half a pint at a draught, as, in his capacity as guest, he is expected to do wherever he goes, may justifiably feel himself a hero. Often it is not completely filtered, thick like porridge and tasting nearly as bad as the ordinary commercial methylated spirit. *Borak* is brewed from rice steeped in water to which is added a fermenting agent. Naturally, up to a certain time, the longer fermentation ensues, the greater the potency of the liquor. This fact is clearly recognised by the aborigine (as we nicknamed all our native friends in order to get away from the even worse implications of "native" or "black"), and if you say to him, "In

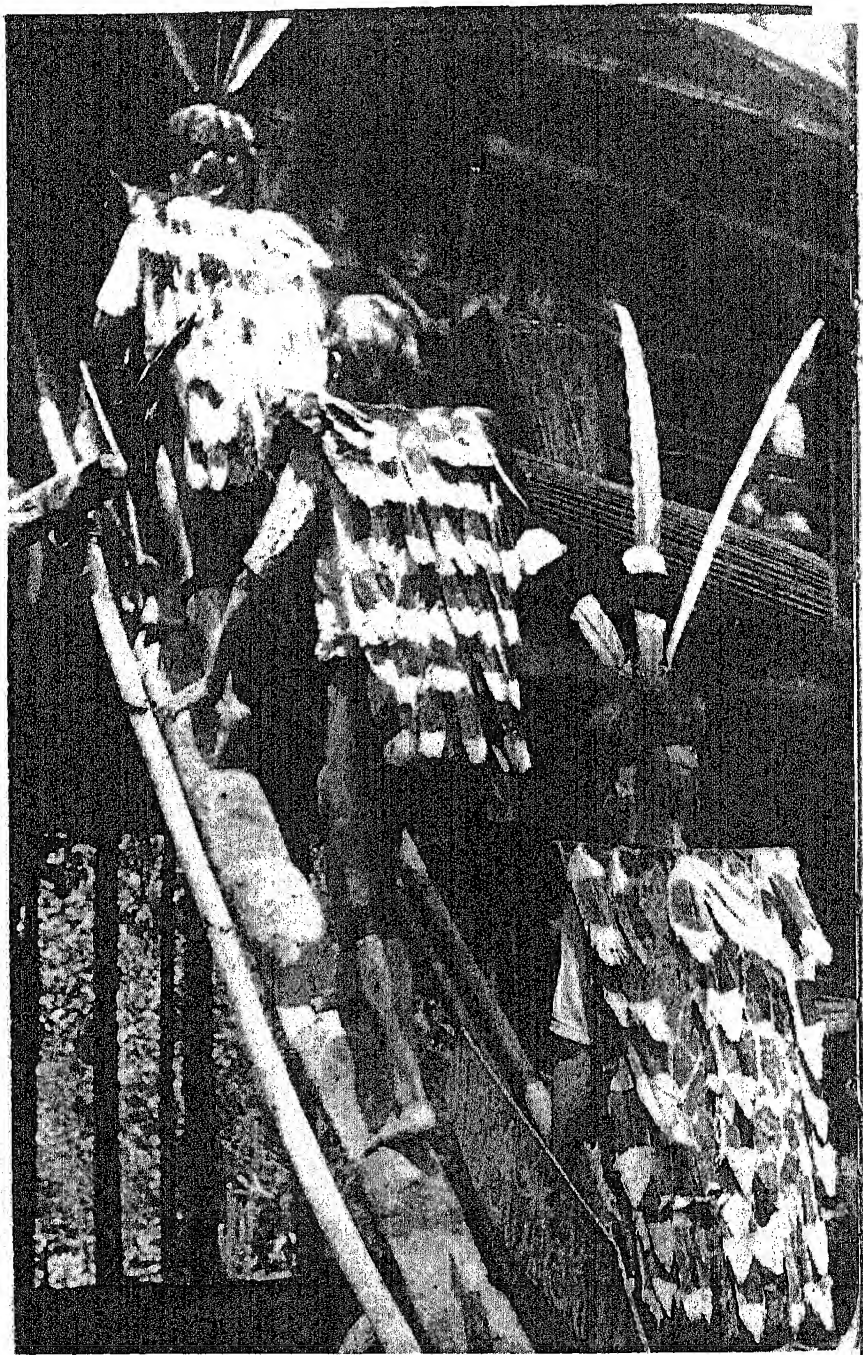
five days' time I wish to provide borak for twenty men to be merry," he will tell you how much rice you will need, and he would tell you, should you ask, that if you waited five more days, the same amount of rice would provide borak of the same quantity but strong enough to ensure conviviality for thirty men. All that day some of our men had been busy filtering off the fermented liquor from the rice grains, and now, the fruits of their labours, supplemented by contributions from our guests, were being greeted with the applause of pleasant expectation. The borak had not long been set down when the cheers were renewed, even louder this time, and we saw, guided by a swaying lantern, a little procession approaching along the tree-trunk which served as a path from the coolie house. Led by the most gorgeous and evidently very blue-blooded crone, the ladies made a dignified entrance. Some of them we had met before. They had appeared suddenly at the back entrance of the house on the day following our arrival, feigning a coyness, which, at home, might have seemed remarkable in a child of five ; but it did not last long ; curiosity soon overcame the assumed modesty felt to be proper in the presence of strangers ; or perhaps it was merely part of their feminine technique. In any case, they had not known us long before they had begged a razor and were inviting us to lay our heads in their laps that our eyebrows might be shaved to dimensions consonant with Ulu standards of beauty. Young or old, they were charming and, were one's taste sufficiently catholic to accept broad noses, high-cheek bones, slanting eyes and often the roundest of faces—Bulan, the Moon, is a common name—one might find them beautiful. But, apart from whatever passes for beauty in women, they possessed, even the plainest of them, a grace which is lost to women of civilised nations ; the grace which seems to derive from bare feet and confers its own particular dignity of carriage and smooth rhythm of movement.

There are three social castes among the tribes of the interior. The upper class is composed of the families of the chief and his near relatives. These families are generally better off than the others, possessing more beads and gongs, and usually having the rights of valuable property in the district, such as fishing lakes and caves in which the swifts build the edible nests so eagerly sought after by the Chinaman. The middle class comprises the greater part of the population, and although the men may sometimes take a part in discussing with the chief the government of the community, this is generally left to those of the upper class. The middle class, too, *are less wealthy and possess fewer of the servants who form the lowest stratum of Ulu society.* These servants are partly the descendants of captives taken in war. They are well looked after and, though the more menial tasks fall to their lot, their position in the household may often be almost that of equals with their owners. They are allowed to marry within their own class, and their families become the property of their masters. They are allowed to buy their freedom and to set up their own households as members of the middle class. As tribal warfare is now very seldom carried on, it is probable that this servant class is dying out and the system is now in a state of decline, but they still exist in fair numbers. They have no part in the tribal counsels, and if one visits a house these servants do not take any part in the entertainment of the guest, nor probably would it be very good manners to enter into conversation with a servant in the presence of people of the upper classes. Bungan, when visiting our camp, brought with her two of these servant women. One was young, pretty and full of coy glances ; the other was middle-aged, plump and of very mischievous disposition. Bungan had no objection to us joking with the latter, but when we tried to converse with the younger, she sternly showed her disapproval.

Decked in all the finery these women possessed, their

silken sarongs flashing every possible colour in the flickering lamp-light, some twenty or so of the wives, sisters and daughters of the assembled chiefs, followed by a number of less resplendent serving women, walked slowly through the ring of cheering men with the utmost self-possession, looking neither to right nor to left till they had reached the place where we sat. Here the little procession broke up, and proceedings became less dignified, for, while it was necessary that the older women should be allotted places befitting their rank, it was also necessary that we, the Tuans, should enjoy the company of the most attractive. Two or three of our men took charge, and with much shouting and gesticulation, eventually put matters in order, so that the older and more important women were seated around the two Government officers, Banks and McLeod, who, because they were the seniors of our party, were (wrongly) expected to be content with less frivolous entertainment, while the younger women were seated alternately with us, the newcomers. The stage was at last set, and a dozen young men, bringing a jar of borak, came up and stood before us.

Coming up the Tinjar about nine days previously we had encountered our first ceremonial borak. We had stopped, before nightfall, at a little house in which were living a few Lalaks, a family from the large house at Long Tru, who were farming their land. Not without some apprehension, for we had heard of the ordeals of borak drinking from many people, we watched the headman squat in front of us, while one of his henchmen brought from the house a bottle and one or two glasses. Solemnly the headman poured out a little and tasted it and flung the dregs on the ground; tasted it to assure himself of its quality, flung the dregs on the ground as a libation, so Hose says, to the guardian spirits of the house. The occasion, one felt, was fraught with, almost, the air of a sacrament. Then, amazingly, the little group



Dressed in war coats, backed with large black and white hornbill feathers,

of men lifted up their heads and brayed very nasally a long "Aa—ah." But the headman shook his head. They brayed again, a different note, and this time he was satisfied, for one saw him gathering, as it were, an impetus, and he suddenly burst into song. There were now ten of us to whom libations must be offered, and, to save time, two lots of songs were going on at once. The singing of the song is done by someone who has a reputation as a singer. This time there was a man, a Kenyah, and a Sēbop woman named Labang, of whom more later, for she was a lady of no little importance, though, as yet, we knew not much of her reputation, nor even her name, calling her "The Count's Sister," she being the sister of our headman, Morah, whose aristocratic bearing had earned him the title of "Count." (In these early days we knew most of the natives attached to the camp by nicknames.) The singing of drinking songs, always very nasal, can also be very impressive; not that one has any idea what they are saying, for it is generally in the tribal tongue and seldom in Malay. There are several different songs, or rather forms of songs, for the words are impromptu, and set to various tunes and choruses. The most common chorus is one in which every solo phrase is followed by what may be rendered phonetically as "Aa—m'naan," sung in a monotone, with occasional variations. The song is finished by a noise, half sung and half yelled, "Oo—ay—Aa—y, Aa—a—aa—h," during which the honoured guest must consume in one draught the contents of the cup which is presented to him. If he shows signs of wilting under the ordeal, it is held to his mouth and tilted vigorously so that he must either swallow or choke. The women delight in compelling the swallow or choke.

While we were thus being lauded our many guests were receiving refreshment from the large supply of borak, the more important of them, like us, with song. When these ceremonies were at an end, the business of

entertainment began. We had preserved an especial treat for the women, a bottle of *crème de menthe*, and with this we regaled each one his partner. But, much as it was appreciated, one bottle did not go very far. Soon drinking had become general. The women vied with each other in trying to force *borak* down our throats, but we had suffered before and had learned our lesson. All that is needed when engaged in this form of sport, is forgetfulness of the gentle courtesy due to women and a strong wrist. A diminutive creature sidles toward you with a coy smile, offering you a cup. If this is your first experience you will probably be flattered, thinking, perhaps, that you have made a conquest. You take the cup and drink a mouthful, perhaps not noticing the firmness with which your new friend has put her arm round your neck and, before you know where you are, she is pressing the cup with Herculean strength against your mouth and tilting it, invariably at the wrong angle, and holding it till it has emptied itself, some into your spluttering mouth, some down your shirt and, often, some up your nose. When it is over you are a very chastened man. The technique, with such drastic tutelage, is soon acquired. When the cup has approached about eighteen inches from your mouth you grasp it with grim determination and, without allowing your grip to relax, you drink a little to satisfy etiquette; then, having, with your free hand, obtained a grasp on the lady's neck—she, already, has got hold of yours—you begin to force the cup towards her. She protests, "No, tuan, it is all for you," but you are not taken in. You insist. Eventually she yields and your little battle is over.

It is the duty of the women also to see that the men are properly supplied with cigars. These are made of native grown tobacco, rolled in the dried leaf of the banana. They are made according to demand and presented already lighted. While the mutual toasting and manufacture of these "sigup" was busily in pro-

gress, the musicians had finally tuned their instruments and, in the middle of the circle, a young man was preparing to dance.

At this moment the damsel who sat between Shackleton and myself, with a charming smile, linked herself with us, arm in arm. We smiled in return, this being our sole means of communication, our Malay at this time amounting to about three words—"tabek," greeting; and "apa nama," "what is this called?" Conversation was not easy, and we were glad that, in such difficult circumstances, our company seemed agreeable. Suddenly a man ran up and stood before us, haranguing our companion in the fiercest possible manner. She disengaged her arms from ours. "Good Lord!" we exclaimed, "the angry husband!" But she answered him and he stalked off, whereupon we again linked arms. It was not long before we were disillusioned. This time it was Usa, our Kenyah mandor, or foreman, who took up the matter, standing behind us and making a loud oration in Malay. We were wondering what it was all about when he seized our arms and those of the women sitting near us and linked us all in a row, with our arms about each other's necks.

"What was he saying, Mac?"

Banks cackled. McLeod roared. "Tuans," he said, "these are your mistresses!"

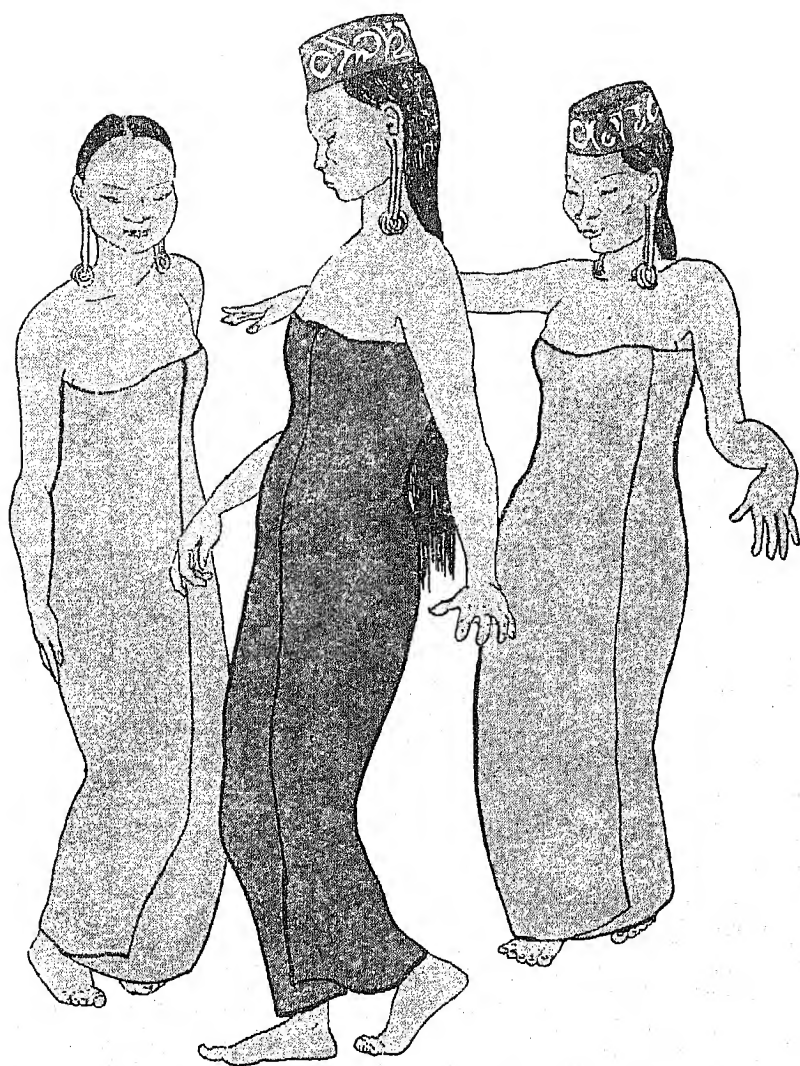
Meanwhile the crowd of men, seeing what had happened, let out a wild yell of delight, and Subai, who we had mistaken for an angry husband, stood rubbing his hands with glee.

Dancer was following dancer in the middle of the circle, some accompanied by the soft tones of the sapeh, some leaping and gyrating in time with the wailing of the keluri. Dressed in war coats of leopard skin backed with large black and white hornbill feathers, a decorated cap upon their heads from which enormous feathers waved, in the left hand a shield and in the right a naked

parang, they presented a spectacle of splendour, while the night rang with their piercing shrieks.

It is difficult to give an adequate description of the Ulu war-dance. It has a barbaric splendour scarcely to be told in prose. While the musician blows a few preliminary trills and blasts upon his keluri, the dancer swaggers up and down before his audience and, presently, picks up and dons the war-coat which is lying to hand. Shaped like a tabard, but short in front, the war-coat is usually made of bear skin, unless it is the personal garment of a Penghulu, when it is of the pelt of the Clouded Leopard. Upon the chest it is adorned with a large flat "mother-of-pearl" shell, and behind with the black and white tail feathers of the common hornbill. Around his loins the dancer ties his seat-mat, an article which forms part of every man's outdoor equipment. Upon his head he places a conical, close-fitting helmet, woven of rotang and proof against the blows of a parang. It is decorated with beads and feathers, or with bear-skin, and on the crown it bears three or four yard-long tail feathers of the large hornbill (*Rhinoplax vigil*). A long wooden shield, fantastically painted and adorned with tufts of human hair, is borne in the dancer's left hand, while in his right he carries his parang, or short sword, with a handle carved of bone and bearing long tufts of red and white hair.

Proudly the eyes of the dancer gleam and the muscles of his body ripple with gold in the flickering light of the oil lamps. His feet drum impatiently on the hollow floor and, as the drone of the keluri grows louder and more insistent, he flings back his head and shrieks a piercing challenge to the imaginary foe. Once or twice he glances warily about him; then, with a sudden scream, he leaps into the air, a prodigious jump, and the dance begins. It is a thrilling sight and, in many houses, a chandelier of grinning, blackened skulls adds a weirdly grim note. First the dancer is on the war-path; he creeps up and



Sarawak Women Dancing.

down, leopard-like, ready to spring; then, suddenly, the enemy! In a trice he swings upon his heels and, howling, throws himself forward, his parang sweeping in the air. Backwards and forwards curves the shining blade. The keluri brays hoarsely and, faster and faster, first this way, then that, he turns, the sweep of the parang in perfect time with the music. The warrior is hard pressed; he sinks to his knees, slowly waving the blade in wide curves at arm's length; his shield drops and now he rests only on the back of his head and the balls of his heels, moving slowly all the while, with perfect control of nerve and muscle. Gradually he revolves, his body raised above the ground, the parang, now between him and the floor, now waving above him, ever maintaining its rhythmic motions. Slowly, again, he rises to his knees and then, with a hair-raising scream, the last tremendous leap. The enemy is vanquished and the audience greets the triumph with a prolonged yell.

With song and stamp, the dance went on, smooth, sinuous curves followed by flashing, quick jumps and thumps with foot as in some modern European dance. Sometimes one or two of the women would take the floor. Their style of dancing was quiet and smooth, a swaying of the body balanced with half outstretched arms.

Our gramophone proved a great success and carried us over many moments which might otherwise have been empty and awkward. "John Brown's Body" was the most popular tune. Occasionally also the expedition would dance. Harrisson's Charleston, a skilful piece of work on a small table, was most popular. Then there was the dance of the Entomologists, a travesty of a butterfly hunt with a human victim, which always convulsed the audience. The unfortunate victim generally received either a dose of borak or cold water to kill him, and then afterwards at least one cup, sometimes two, of borak, complete with song, to revive him again. But to tell

the truth, one was not able to pay much attention to the dancing. Usa's exhortation had not been made in vain, and it was with slight feelings of relief that, at two o'clock the next morning we escaped from the bombardment of borak, cigars and caresses to the seclusion of our beds. We felt, though, that our initiation into Ulu society had been a success.

II

DEATH IN THE AFTERNOON

One morning a canoe arrived at our camp and from it stepped a youth bearing upon his back a very frail and very old man. The youth brought his burden into the house and, bending his knees, carefully deposited the trembling, wheezing body into the best chair. A thin arm was held out and we came up to take the hand and receive the greeting of Tingang Saong, the Penghulu of the Sébop house of Long Miwah. On the back of his fingers and knuckles were faded bands of tattooing, the mark of a man who has taken a head, and, in his young days, Tingang had taken many. One felt strangely honoured to receive that hand and to reply to the feebly voiced, "Tabek, Tuan." He did not stay long with us, but talked a little while, and then, his head drooping under the weight of an enormous tumour, beckoned us to shake him once more by the hand, and indicated with a little gesture that we should fetch also the others, and when this was done, called the young man and was taken from us.

A few days later the news came that he was dead. Over six weeks passed before we heard of the day of burial. One morning, exactly fifty days from the day the old chief died, Shackleton, Banks and Hobby, armed with a camera, and I, went to Long Miwah. There was not a little speculation as to the greeting we should get from a fifty-day corpse, but Banks assured us that the

aborigine knew his job, and that there would be a spout attached to the coffin.

As we neared Long Miwah, after a struggle against rapids where our outboard motor could scarcely hold its own, we rounded a corner on which, surrounded by a scaffold, stood the erection in which Tingang would be laid. Grave it was not ; no English word seemed suitable ; some days after, I showed a photograph of it to a young Kenyah, asking what it was called, and he replied that it was a "salong" ; but I could not be sure this is the correct word. Anyhow, it sounds more appropriate than mausoleum.

As we drew into the bank, half a dozen of our men who belonged to the house and had come up several days beforehand to assist in preliminary rites, ran down to meet us, shouting and firing off their guns. This seemed a somewhat boisterous welcome for such a solemn occasion, but we soon noticed that the eyes of Subai and Balan Lejau were red with weeping, and felt reassured that the sober demeanour we had prepared to adopt would not be out of place. We discovered later that the guns were fired off to announce the arrival of distinguished guests to the spirit of the dead man. An almost unbelievable din greeted our ears as we climbed into the house. The verandah was crowded with men, women and children, and we recognised among them many visitors from other Sěbop and Lirong houses in the district ; the Penghulu of the Dapoi River and many others strange to us, even a monkey-faced little man with peculiar ear-rings, who, we were told, was from over the Dutch border. Subai, very officious and important, led us quickly through the crowd to the place reserved for us and bade us be seated. No sooner had we done so than a group of men gathered about us, and one, squatting down beside one of us, put his head on his shoulder and howled and sobbed as if his heart would break. This seemed a signal for a fresh outburst of

noise, and soon everyone was sobbing heartily. But above the noise of the wailing multitude arose the thud and crash of two great brass *tawaks* (gongs), upon which lusty youths hammered with wooden clubs. One had to shout to make one's self heard, yet, above all that din, one thin, high-pitched wail held its own unbroken sway. Upon the bier sat a little figure, enveloped from head to foot in white cloth, the sister of the dead man, his nearest living relative, singing her lament.

The catafalque consisted of a wooden platform hung between four pillars, about a yard from the floor of the verandah. It had been placed at the end of the house in order not to interfere with the daily comings and goings of the inhabitants. The whole structure was thickly decorated with parti-coloured native flags, triangular red and white and red and yellow, each weighted with a stone to prevent it waving. The usual frills of woodshavings adorned every available space. The coffin, an oblong box, was wrapped in a red blanket, and upon it were laid the dead man's gear: shield, spear, paddle, sword, a magnificent warrior's coat of leopard skin and hat with enormous hornbill feathers and, over all, hung his Penghulu's flag, the royal banner of Sarawak, the Rajah's gift to him when, thirty years ago, he had received his appointment as Penghulu. Beside the coffin the white figure of his sister maintained its dirge.

Most of the women were clothed in white for mourning—a custom probably derived from the Chinese as a substitute for the original one of daubing the clothing with yellow clay. Three of them, members of the household, had busied themselves with rolling cigars for us, and soon one of them brought over a handful, ready lit, her eyes red with tears. Our situation was not without its embarrassments; courtesy demanded solemnity and, deprived of the relief of laughter, for tears also are infectious, each of us felt an incipient “lump in the throat.” But if courtesy demanded from us an attitude

of sympathetic grief, it also demanded that our hosts should not forget the entertainment of their guests and, presently, Subai ran off and came back bearing some cups and two bottles, one of arrack and one of borak. Among the visitors was one Blaweh, a huge man who, going about chatting and grinning at all, seemed utterly oblivious of overhanging sorrow. Seeing the liquor brought before us, he came and squatted beside Subai, who handed to him a cup of arrack. Not easily did they entune the note amid the din of weeping, but Blaweh, once started, sang lustily as at any feast, and the men around him, gaining heart from him, joined in the chorus. But Subai could not master his emotion and, in the midst of a long "Aa—ah," his mouth twitched, and "Oh—o," he cried, dissolving into tears, and yet again, "sniff—sniff," and he gained courage to finish the chorus. The extra tumult of the song seemed to provoke those, especially the women, who were not concerned with it, to rivalry, and they redoubled their keening so that we drank the bitter arrack amid frightful pandemonium. The chief mourner, sitting in solitary state beside the coffin, must have seen us drinking, for she seemed suddenly to be aware of a strained larynx and, ceasing her song, signalled for refreshment. She drained a mug of borak with relish, lit a cigar and puffed away nonchalantly, resting her elbow upon her brother's coffin. The dirge, however, was not allowed to cease, but was immediately taken up by Labang, sister of Morah, the dead man's successor, who, we were told, was acting as M.C. or, more accurately, *dayong*. This dirge not only celebrates the fame of the deceased but, addressed to his spirit, gives it directions on how to overcome the difficulties which will beset it, when, after burial, it leaves the neighbourhood of the body to go over the local Styx into the afterworld. The Sebops again, according to Hose, have a rather attractive theory that in this afterworld, everything is the direct opposite of what it is in this life, where-

fore they break everything which is to be buried with the body, saying that whatever is useful here is useless there, and *vice versa*. However, whatever the truth of this story, we saw no signs that it applied to our own Sēbops. They broke little.

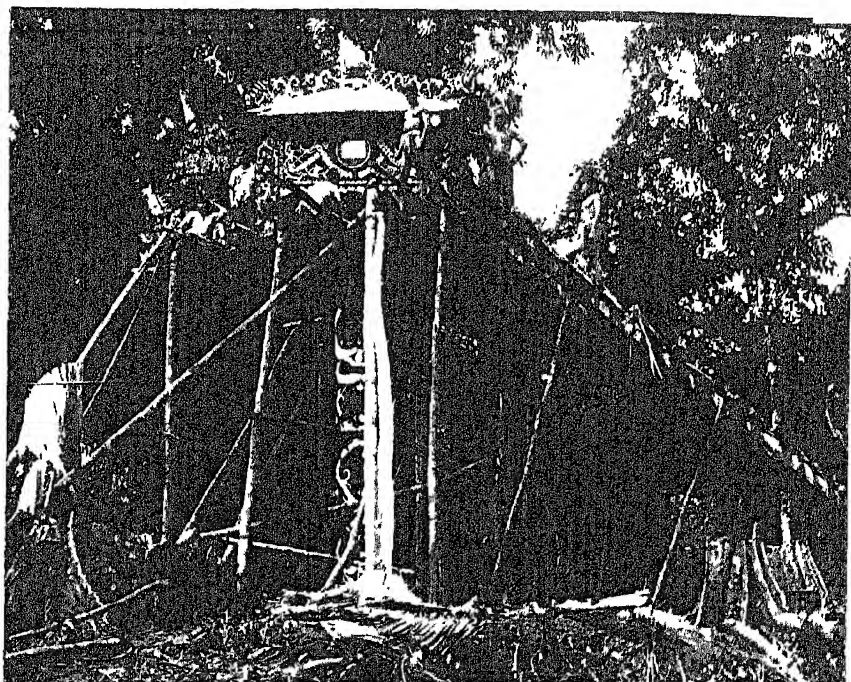
Presently came Morah, saying that the people were about to eat, and led us away to his "door" where one man had been preparing our midday meal. Looking around the room we saw the walls had been plastered with pages of the *Observer* and the *Manchester Guardian* and one or two pictures from a frivolous weekly. These had been filched from our camp, as all things finished with were filched, to provide amusement or to flatter the vanity of some aborigine. Hanging from a peg on the wall was a bright blue coat which we recognised as the property of a young man, Lian, who had been with us, the son of a Penghulu of the Baram River. And, placed carefully in a corner was a little picture frame containing two photographs of himself and some friends, which Hobby had taken and given him only a few days before. He was now staying at Long Miwah and, because of his status as son of a chief, had been lodged in the headman's room. Where he had obtained the frame one could not guess, but long-houses often contain surprises: at Long Sungei there is a framed portrait of the late King Constantine of Greece, and once, in a small rice farm belonging to some Lalaks, we found a large English celluloid doll smiling at us inanely from among an armoury of spears and parangs.

During lunch we were startled by a great hullabaloo outside, a sudden storm of shouts, screams and gunshot, and, going out, found the catafalque dismantled and the coffin, wrapped still in its red blanket, lying devoid of ornament, ready to be carried aboard a great prahu which lay moored at the bank below.

A broad ladder had been constructed from the verandah to the ground of parallel logs, stripped of their

bark, about ten feet wide. Above it, from the edge of the roof for a distance of some twenty-five yards towards the water's edge, stretched a canopy of red and white cloth. It would not do to carry the body down a ladder in everyday use, for that is tempting dire misfortune from the malevolent spirits which are ever hovering near a place of death. These spirits are kept off during the ceremonies by the noise of the *tawaks*. Six men picked up the coffin and bore it slowly down the creaking steps, among them the dead man's son, puffing a cigar. Beside them walked the wailing sister, and behind came some of the senior men bearing her brother's accoutrements. Seeing Hobby darting backwards and forwards beside them in an effort to focus his camera—he had been gladly accorded permission to make pictures—the cortège stopped till he had done. We followed the little procession to the top of the river bank and stood watching the departure. All the flags from the catafalque had been taken aboard, and the coffin, which for the purpose of carriage had been slung on a pole, was placed beneath a *kajang* (palm-leaf roof), over which another red blanket had been laid. When all the various articles had been put aboard the prahu, the women of the house, draped in white garments, got in and seated themselves in pairs, weeping side by side. The women leaving no room for men, four small prahus were attached to either side of the large boat, and in these they sat. We watched them borne out on the swift current round the corner and out of sight.

One felt, at this moment, a peculiar sympathy for these people which, for some time after, I was unable to define. It was evoked by the spectacle of the boats carried rapidly on the wide river, unwatched, save for the small crowd on the bank. There was a sense of their immense isolation; they were burying one who had ruled over them for thirty years, a warrior and one who had been their king; who, had he held a position



Grave it was not, the "salong" built for Tingang, the great chief. Both the column and the aerial house were beautifully and fantastically painted.

At Long Miri, backed by the dark forest, they stand.



of the same relative importance in a civilised country, would, perhaps, have had kings among his mourners ; yet here, surrounded for hundreds of miles by the forest, a boat took him away, unknown to any save his own people, ourselves and one or two government officials who had heard of his death and regretted the passing of a good chief. Only the members of his own house had gone in the canoes, the guests all remaining in the house. But we called to our men and followed down river in our own canoe. When we reached the clearing where the "salong" had been built, the coffin was being carried up a stairway, similar to that over which it had left the house, to the scaffold platform which surrounded its resting-place.

The "salong" consisted of a stout, upright column, a tree-trunk about thirty feet high, carved with intricate patterns and painted in orange, black and white ; resting upon this was a large structure, ten feet by six feet square, with walls about five feet high, surmounted by a gabled roof. Along each of the four gables ran dragon-like carvings and, on top of all, was placed a large green jar of Chinese porcelain, which had belonged to Tingang Saong's grandfather, an article of great value. Again, like the column, the whole of this aerial house was beautifully and fantastically painted with perfectly balanced design. Nearby stood another pillar, painted and roughly carved, and on this the flags which previously had decorated the catafalque were being hung. Strings of flags hung, too, from the four corners of the "salong." The whole structure had taken three men nearly two months to build, and the result was no mean testimony of their skill. While the grave grew in beauty, the corpse decayed.

The scaffold which had been erected round the "salong" supported a platform about a yard in width. Upon this some twenty persons, mainly wailing women, had gathered, while Subai, Balan Lejau and two assistants had placed the coffin, by means of a small door, inside its

"house" and were now finally arranging the interior, laying spear and paddle, parang and war-coat, upon the coffin, and variously disposing of the other goods which had been the property of their chief. We inquired if we might come up and take a look inside. "Of course. Why not?" So we scrambled up the ladder and looked in, and then, curiosity satisfied, descended. Our descent seemed to be taken by the women as a sign for them to cease mourning, for they all followed us down. Soon they had wiped their eyes and came over to where we sat on a fallen tree and, begging tobacco, were soon busily rolling cigars for us and for themselves. They chatted merrily, laughing and handing us sirih and betel-nut as though nothing whatever had happened to disturb their customary serenity.

This sudden change of countenance tempted one to cry "Hypocrisy," but, on second thoughts, I saw the injustice of doing so. The multitudinous grief we had seen obviously had not been a spontaneous outburst of stricken hearts; rather it was the polite expression of mourning, a substitute, as it were, for flowers. It evoked an emotion and, if this was quickly changed for the opposite one of laughter, the change was excusable after fifty days compulsory sorrow.

III

SNAKE MAGIC

Snakes would, at times, visit our camp and, generally, as soon as the alarm was raised, everybody turned out with sticks, parangs and spears, to join in the hunt. All snakes were fair game, save one, a beast with red head and tail; of this one, Hose remarks that if met with during a journey, it must be killed, lest harm befall him who lets it pass. In ignorance we slew the red-tailed snake in camp, and dire were the

consequences. "A bad omen, indeed," said our men, "and the Tuans must grant us one day 'pantang' in which we may circumvent the evil which will surely come." "Go away," answered Banks; "no evil will come." They went away muttering. "Three evils," they said; "three, and one will surely be fatal." That day, nevertheless, they worked as usual.

But at night we were startled in our sleep by a loud crash and found, in the morning, a huge tree fallen, which, had it collapsed but two yards to the right, would surely have been the death of many men. Glumly they besought us, "That is the first, Tuans." "Oh, nonsense! Be off, be off!"

Again that afternoon they came. "Tuans, Aban here has hurt his foot badly. It is the second evil. We must have 'pantang' to-morrow, for the third evil will surely be death!" Aban had indeed badly hurt his foot and limped along with a wide cut; his parang had slipped while cutting wood. Dread had seized the hearts of many and, though it meant idleness for all, we gave consent for a day in which to propitiate the offended gods.

On the morrow, save for our Malay collectors, we were without help, and, in the afternoon, Morah came, saying that all was ready and would the Tuans join in the rites. He led us a little way out of the camp to a small clearing where we found several old men, mostly chiefs, for we had many visitors at that time. They were squatting around a sort of rough altar, or shrine, made of frayed stakes, some pointed and some split and opened at their upper ends. Stuck in the ground, in the middle of the clearing, was a rough, wooden perch, about a foot high, on which were set eight roughly carved effigies, representing, we guessed, omen-birds or "isits" (*Arachnothera*, the spider catcher). The officiating "priest" was the one-armed chief of Long Kappa, who had for "acolyte" a genial old fellow who laboured

under the encumbrance of elephantiasis of the scrotum, but was, nevertheless, possessed of an enormous family. These two had procured a bottle of borak, six small chicks and a decrepit hen. We sat down and listened to the acolyte who, holding in his hand a stick, bound at either end with red rag (this was the slaughtered snake), addressed it vehemently and at great length, emphasising his remarks by shaking it vigorously. His harangue over, he poured out borak into a little bamboo cup and handed it to the one-armed chief, who anointed first the snake-stick and then the "isit" effigies.

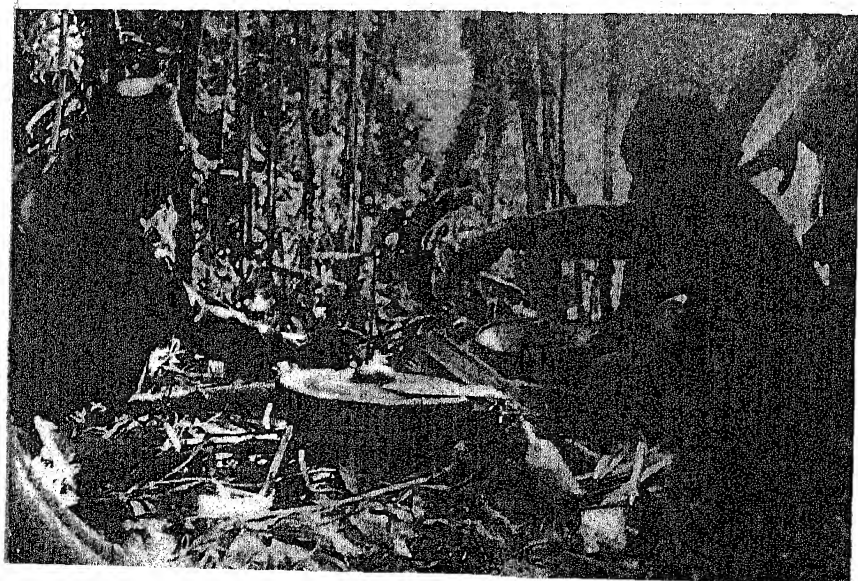
It was now the turn of the chicks. With great solemnity, holding the squeaking bundle of feathers at the length of his one arm, the "priest" addressed it for some ten minutes, then handed it to his assistant, who, with a twist of his fingers, tore off the head and stuck the quivering body on a sharp stake. As this was repeated six times we began to get bored, and Tom Harrisson lay back and was soon asleep. Balan Deng, the Penghulu, also seemed not to regard the ceremony as earnestly as some, for he was a man of wide knowledge, having actually shaken the hand of Prince George in Singapore, and knew much of the ways of white men and, I think, was somewhat of an agnostic in regard to the beliefs of his humbler fellows. Seeing Tom asleep, his eyes twinkled, and he beckoned to me. Feeling rather like a naughty choir-boy egged on by another, I did as he bade me, and pushed a straw into Tom's nostril. Balan roared, and held his sides with laughing as Tom awoke, puzzled and angry. The more serious of our companions did not approve this levity and looked down their noses at the frivolous great chief, then turned away to slay another chick.

The slaughter of the hen was a more picturesque affair. She, poor thing, her head already, presumably, confused with the variety of messages which she had been charged to deliver to the gods, was not granted a



He climbs all round like a monkey—Kenyahs at play.

Snake magic, propitiation of the Bornean gods. Thus was the shadow of death removed from us.



quick release, for, while his assistant stretched her neck, the one-armed chief, still volubly exhorting her, sawed slowly at it with a rusty parang. When her cluckings stopped, and the head parted from body, the spurting blood was scattered upon the shrine, and the body put aside to become, as we saw later, a meal for her slayer.

The ceremony was wound up by placing fowls' eggs upon the tops of the split stakes and by the consumption of the remaining borak by the "priest" and his "acolyte"; it was thick as a rice pudding. And thus was the shadow of death removed from us, for the third evil did not materialise.

There are innumerable superstitions regarding the flight of birds, especially the kind known as "isits." Should one fly across the path of a Kenyah, from left to right, it is a favourable sign; but should it appear on the right and fly to the left, then he knows all is not well and even may refuse to continue his journey that day, unless, in the meanwhile, other favourable omens turn up. This is a traveller's formula for circumventing these difficulties: when journeying by river, make those men who are not paddling, sit with their backs to the bows, so that, whichever way, according to the paddlers, an omen bird crosses their course, whether from right to left, or left to right, there are always others who have to admit that the bird has gone in the opposite direction.

The summits of the hills especially, are the abode of spirits. The Punans will often refuse to go to the top of a hill which has not been climbed before, and the people of the other tribes, on climbing a new hill always demand that a sacrifice be made lest the spirits be angry at the trespass. They say that, unless a man do these things, he may be seized by the "gum toh," "the ghost clutch." We saw the so-called mark of the "gum toh" on many. It is an angry-looking raised scar, due to a peculiarity, well known to medical science, whereby the skins of certain people will swell and become perman-

ently fibrous in forming a scar. It is generally advisable to comply with demands for sacrifices lest one be blamed for any mishap afterwards. When Moore and a party of natives had got, for the first time in history, within reach of one of the twin peaks of Kalulong, his men refused to go on without a sacrifice. But there was nothing at hand to slaughter. Moore was not inclined to return, and eventually persuaded his men to follow him. They succeeded in reaching the top and returned to their camp for the night. The next morning every man who had been with him was suffering with a severe cold. The cause was obvious. It was not, they said, the chill of the mountain-top but the angry spirits who had thus afflicted them. That day appropriate slaughter of a hen, and a little whisky spilt upon the ground, enabled them to explore the mountain without further trouble.

The tribes seem gradually to be losing their faith in their own methods of treating sickness, and prefer, generally, to obtain the aid of a white man, if available. Their own therapeutic methods are based on the belief that sickness is due to the evil influence of certain spirits and that it may be cured by invoking the aid of other supernatural beings. The Punans, however, seem still to rely rather on their own "dayongs" or wise men. A Punan woman who, with her husband, was serving as one of our coolies, was afflicted one day with a severe headache. Shackleton vainly endeavoured to persuade her to take some aspirin, but she refused, preferring the two stripes of chalk which her husband had painted on her forehead. This same woman, later on, was again unwell at the Top Camp. Her husband sat beside her, and in one hand held a structure which looked like a piece of Venetian blind hung on a stick, and in the other a white feather which he passed backwards and forwards above her while singing an incantation.

Hose and McDougall give a good description of the "dayong's" method in treating sickness :

"The Dayong," they say, "comes provided with a short tube, prepared by pushing out the core of a section of the stem of a certain plant of the ginger family. After inquiring of the patient the locality of his pains, he holds up the polished blade of a sword, and, gazing at it as one seeing visions, he sings a long incantation beginning :

Bali Dayōng usūn lasān
 Urīp ulūn kam kelunān
 Nini ketāi natōng tawāng Lemān
 Bali Dayong.¹

"The crowd of people, men and women, sitting round the central figure, join in the Bali Dayong which recurs as the refrain at the end of each verse, intoning in loud, deep voices. It seems clear from the use of the words, 'Bali Dayong,' that the whole is addressed to some superior power ; for no human Dayong, and indeed no human being, is addressed or spoken of with the title Bali.

"During the singing of a number of verses in this way, the Dayong seems to become more and more distraught and unconscious of his surroundings ; and when the singing ceases he behaves in a strange manner, which strikes the attendant crowd with awe, starting suddenly and making strange clucking noises. Then he produces the tube mentioned above, and pressing one end upon the skin of the part indicated by the patient as the seat of the pain, he sucks strongly, and, presently withdrawing, he blows out of it on to his palm a small black pellet, which moves mysteriously upon his hand as he exhibits it to the patient and his friends as the cause of the pain ; and if the patient has complained of more than one seat of pain, the operation is repeated. It only remains for the Dayong to return gradually with some violent gestures and contortions to his normal state and to receive

¹ A free translation runs :

O holy Dayong, though who lovest mankind,
 Bring back thy servant from Leman,
 The region between the lands of life and death,
 O holy Dayong.

(The song would be intoned, somewhat nasally, with accentuation of the syllables I have marked and, if read thus, gives a good idea of the rhythmic quality of Ulu verse.—J. F.).

his fee, which properly consists of the sword used by him in the ceremony, and a live fowl" (Hose and McDougall, *The Pagan Tribes of Borneo*," vol. ii.).

Certain taboos are associated with sickness and with special conditions in relation to childbirth. At Long Miwah a woman was about to give birth to a child and, for this purpose, she had been confined to a small hut behind the house and was prohibited from intercourse with any save her husband who, at intervals, brought her food. Among the barbaric customs which still remain is one whereby the husband of a woman dying in childbirth is expelled from the house, with the child, if it is alive. This occurred during our stay, and the unfortunate father came to the camp to beg milk for his baby. Our men reproached us even for allowing him to enter the camp, for they believed his presence to be fraught with misfortune. This man had become a total outcaste from society; no house would admit him and he was forced to provide for himself as best he might in the forest until the child should die; and die it did, and he was allowed, once more, to re-enter society.

Fearful as they are of sickness, to which they can assign no cause, the people are gradually becoming more and more convinced that the white man's cure is better than their own. But it is easy to see whence comes the dayong's power, and the credulity which allows him to banish pain by simple jugglery, also accepts the simplest of the ointments of the white man as an infallible cure, like any Sunday newspaper reader.

An old lady once came to me, complaining of a bad arm. It was swollen and inflamed, and I gave her zinc ointment to dress it. A week later I met her again. Her arm was better. She showed it me, and I saw it plastered with a white chalk paste. "What is this?" I said. She replied, "It is medicine such as you gave to me, Tuan."

IV

TUBA FISHING

“Tuba fishing” is always something of a social event, and, for our benefit, our neighbours arranged a foray in the nearby Kappa River. About a hundred people took part in this expedition. On the previous day a barricade of stakes had been driven into the bed of the stream so that the fish above it should have no chance of escape. One by one, six large prahus were dragged past this barricade, accompanied by many smaller ones. We had divided ourselves among the large boats, each the property of a chief, and I found myself with Pejingan, a Kenyah chief. We reached our destination without mishap, though a large snake, some eight feet long, fell from a tree overhanging the bank, and splashed noisily in the water at our side. Like most of the smaller rivers of Borneo, the Kappa is a narrow stream, flowing swiftly between steep banks from which trees start almost at the water’s edge, their leafy crowns meeting over the water to form a green and twisting tunnel into which the sun shines in dancing, broken patches.

When, from the shallowness of the water, we could proceed no farther, the whole company disembarked on a patch of shingle. Here, for two hours, feverish activity prevailed, while the women rolled cigars, both to refresh humanity, and to ward off the hordes of ravenous sand-flies.

First, two platforms were made across the stream by felling trees on the spot. Each man then cut himself a small club. Each of the communities taking part in the fishing had contributed to the supply of tuba, the root of a species of *Derris*, a climbing plant, the sap of which has narcotic properties. Taking a handful of this root, each man proceeded to bruise it on stones from the river bed. When the roots had thus been sufficiently softened,

several small prahus were filled with water, into which the roots were thrown to soak. When as much as possible of the juice had been extracted, the roots were removed and piled in great heaps on the platforms which lay across the stream. On either side of these platforms stood about thirty men, who, with their clubs, beat the stuff again for about thirty minutes. It was then thoroughly washed with water which flowed through into the river. The small prahus, with their cargoes of tuba solution, were overturned and the river became milky with the poisonous juices. As the current carried the tuba downstream, everybody leapt into their boats and, following it down, speared and grabbed at the fish as they came floating helplessly to the surface. The scene was a lively one, the fishers becoming greatly excited, shouting and laughing and jumping into the water in their eagerness to catch as many fish as possible. It was by no means an easy task to capture the fish, for, although they appeared inert as they floated on the surface, when touched they gave a violent jerk and flung themselves out of reach.

Despite the terrific excitement, everyone is careful not to mention the fishes by name. They are referred to as "the leaves" or some other such phrase, for fear that their friends the birds and the bats, who understand the human speech, should give warning to the spirits. The spirits might bring rain and so swell the water that the tuba would have no effect.

The most potent of these spirits is "Balira," who is the "dayong" or chief magic maker of all the fish. There is a legend about his assumption of this office. Long ago the fish were unable to find a dayong. None among them was willing to devote himself to working charms and exorcising spirits on behalf of his fellows. At last the Balira offered to serve as dayong on condition that every fish should give him a bone. His offer was accepted, and to this day he is known as "Bony Balira."

It is also regarded as injudicious to talk freely of the

tuba, and the root is generally referred to as "pakat abong," which means "something we have agreed to call abong." Abong actually is a strong smelling root, not unlike tuba, but quite harmless to fish.

The catch amounted to four or five hundred fish, varying in size from that of a sardine to that of a cod. The majority of them were catfish, distinguished by long whiskers or barbels beneath the mouth. Some of the fish have stinging spines which can inflict very painful wounds, and one must therefore exercise considerable care in handling them. A Chinaman at Marudi had been stung by one of these fish ; and his howls were terrifying to hear.

The hunt lasted from early morning until near sunset, when all returned home pleased with the success of the hunting. The fish that was not eaten was cut up into steaks and dried in the sun.

Such a tuba fishing excursion is not a frequent event, for though the natives cultivate the root in the gardens near the Long Houses, a large amount is necessary for success, and only occasionally can sufficient be obtained. The commonest mode of fishing is by use of the jalla, a circular net which is thrown dexterously so as to spread out over the water. The weights which are attached to its circumference draw it downward, enclosing anything which happens to be beneath it. At night, fish are attracted to the surface of the water by flares and speared on long-handled tridents. A fourth method of fishing is angling with rod and line.

V

PADI AND PRAHUS

While we are at the Base Camp our neighbours were engaged in sowing the next year's harvest. This task is not easy, for it is necessary, before any steps can be

taken, to ascertain by various signs whether the sites selected are approved by the spirits. This approval is sought by observation of the flight of certain birds and is a task set aside for a man with a reputation for divination. When, finally, favourable signs are obtained, the various families begin operations. Each family is responsible for its own crop and, within the district belonging to the house, the various sites are selected. Along the bank of the river is secondary forest, that is, forest which has been cut down and renewed within fairly recent times. It is nevertheless often composed of trees of considerable height, while the undergrowth is generally much thicker than in the untouched primary forest. The first task, then, is the removal of this secondary growth. Armed with axes, the young men climb the valley side. Selecting the largest trees, they fell them with extraordinary skill so that, as they fall, they break down the smaller trees beneath them. By this means several acres can be demolished within a few days. Next, the whole of the felled area is set on fire and, at this time, watching from our camp on the summit of Dulit, we could see, as we looked over and up the great valley, long lazy columns of smoke ascending from all along the river into country thirty to forty miles farther inland, at that time still unexplored. When the fires have gone out, the wise man is again requested to prophesy a favourable date for the sowing. This may take several days but, at last, all is ready and the whole household sets off to its particular field.

Sowing the rice takes place about the month of September, and during this time there is little else to occupy anyone's attention and, save for the chief and the oldest inhabitants, the Long Houses are empty from sunrise to sunset.

We were invited to go to a padi field which belonged to our neighbours at Long Kappa. Sometimes we would accept their invitation as a contrast to our collect-

ing, or to add to our collections in a new and different environment.

A number of men, armed with long pointed staves, moved slowly about among the charred tree trunks stabbing the ground so as to cover it with holes about nine inches apart. Behind them, but more slowly still, came the women with bags of seed, a little of which they dropped into each hole. Although within the shelter of the forest one may walk with fair comfort even at mid-day, in the open the natives are bound to protect themselves from the sun. Upon their heads they wear their broad disc-shaped hats, often with lovely bright colours inset in vivid geometric patterns from which hang the bright plumes of hornbills and argus pheasants, like parasols at Ascot. And the women, in addition to wearing cotton coats, sling over their backs mats of palm leaves. We always found that the natives were extraordinarily pleased whenever we undertook to help them in their domestic tasks, and the women made much fun of our efforts in trying to drop the seed accurately into the holes. After about half an hour we found that the sun was becoming quite unbearable, but our friends did not expect us to work as hard as they, and sometimes they brought with them one or two bottles of borak with which to refresh us, and, when there was no borak, one or two of them were always ready to run to the river bank to cut four to five-foot lengths of sugar-cane, tough to chew, gritty to the teeth, but yielding in the end a rich syrup so tantalising that you chew on and on until even the best tooth aches. Sometimes in place of sugar-cane they brought fruits of the pawpaw which grew there abundantly.

At one house we happened to find that the chief had been enlarging his fleet of canoes. These are cut from single trees, felled in the forest, and there roughly hewn into shape. They are dragged down to the river and further hollowed out until the shell is of the required

thickness. It is then filled with water and gradually, as the wood softens, forced into shape by the insertion, across the beam, of increasing lengths of wood. Finally, shavings are set fire within the hold to harden it. This particular chief had made about thirty new prahus, and we found the young men joyfully engaged in testing them. We were gleefully invited to join in, each of us getting into a separate boat with a crew of eight. In consideration of our feebleness, we were given small women's paddles—to manage a man's paddle at any great speed for us would have been impossible. Together we paddled upstream and four boats lined up. At a given shout we started paddling for all we were worth, paddling with short, sharp digs in the water and thumping the paddles against the side. The river was swift and the speed tremendous and, in spite of the lightness of my paddle, I soon found my stroke to be getting behind that of the others. At a sharp bend in the river the boats came together, and before I had time to think I was under water. However, we managed to right the boat, and amid much laughter all turned back for another race.

VI

TRAVEL IN THE ULU

For three months Hobby, Moore and I had gone out daily into the forest to work ourselves and to supervise the efforts of our helpers. Usually we returned to camp at lunch-time, having between us enough material to keep us busy sorting and packing insects until the light failed. During these months we had learned much of Ulu ways and had picked up enough pidgin Malay, the *lingua franca* of Borneo, to hold simple conversations. In the last month our camp broke up and its members set off on various explorations. Hobby and I, less eager for energetic activities, and fascinated by the folk we had met,

set off on a long trip to visit the homes of our many friends who had come from all around to help us in the previous months.

A week before our departure, a messenger had gone ahead bearing with him a strip of rotang-creeper in which were tied a number of knots. From these knots a chief might tell, by their number and the manner in which they were tied, that in so many days he should be prepared to receive so many guests.

We left Base Camp in a large canoe borrowed from the chief of Long Mobai. Our crew comprised ten men and the boy Lidam. As mandor we had Tama Ukak Wan, who had been with us since our arrival and who now answered to "Uncle George," because so quiet and friendly and fatherly. We were a mixed crowd: Sëbops, Barawans and Punans, while Lidam was a Kenyah and Uncle George a Kayan. Of the three Punans, Kemuchak and Maran and another whose name I forget, two caused no little trouble by importuning us to allow them to bring their wives and one child. Maran, doubtless, having ravished his wife away from her proper lord, sorely wounding that unfortunate man in so doing and having, as a penalty, a fifty-dollar fine overhanging him, was anxious lest reprisals might be taken. These women became, as it were, our camp followers, accompanying us in a small prahu of their own. Finally, we took with us Leman, a Malay "boy."

We reached Long Atun after about three hours paddling upstream. We intended to remain two hours and go on to Long Miwah for the night, but Oyang Lawek, the chief, gave us a very pressing invitation to remain till next morning, and, though it was then only noon, we consented. The afternoon we spent in talking with him and some of the older men, one of whom had been to Kuching and had acquired a great reputation as a sage. This old man, very frail and thin, and, unlike most of the old people, very pallid of complexion, had

been, in his younger days the chief of the house, but had retired owing to infirmities. He possessed a chair, for his old limbs were too weak to allow him to squat upon the floor, and, with staff in hand, he sat and listened to our talk, every now and then allowing words of wisdom to fall from his lips.

The conversation was mainly of our doings and the benefits we had conferred by our presence. From us they could buy goods cheaply, for we did not charge exorbitantly like the "orang Tsinah," the Chinaman. Could we not, they said, give them medicine to stop the insects and pigs from eating their crops? Was it true that the white man could make holes through mountains, to walk through them? Why did we not blow fish out of the river with fire (dynamite), as they had once seen other white men do. (These must have been geologists from the oil fields at Miri, who had been prospecting in the district some years earlier.) If we did not live on the rivers, how would we find our way to our homes when we got back to Airopa (Europe)? And, after Hobby had described modern farming, the sage remarked, "Well, it seems that the white man never does any work. When he sows corn, he sets a motor going, and when he reaps too; when he wishes to make pictures, he has a little box which makes them for him, and even when he wishes to dance he has a motor to make his music!" It was not always easy to provide satisfactory answers to their questions, and one completely baffled us. "How many Englishmen are there?" they said, and we answered, "Oh, millions and millions." They seemed doubtful. "Then how many Dutchmen are there?" We did our best to convey the numbers of Dutchmen. But what could we say to "Are there more Christians than Englishmen?"

We always did our best to give an honest answer to questions, but it was not easy to do so and yet feel that one was helping to increase the respect of these people

Evening rest.



for white men. Fortunately, an inadequate vocabulary enabled us to dodge without deceit many questions concerning the ethics of civilisation. But one felt, having filled our hearers with envy for the comforts of a mechanised life, that it was necessary to disillusion them a little. When the Arabs inquired of Doughty the numbers of the British Army, they cried, on hearing his answer, "Ah, God! help Thou the Moslemin!" But no such fear possessed our hosts. One day, with our mail, arrived some papers with pictures of King George V., and our coolies stood around intently studying the photographs of one, who, in some dimly recognised way, was even greater than Rajah Brooke, and they had heard that in Europe Englishmen had been engaged in war, and one of them even knew that Tuan Rajah King had been fighting with a man called Kaisar. The old man was curious to hear of the manner in which we fought. We answered with as graphic as possible an account of the effect of a high explosive on a crowd of people, and he said, "Adoie! adoie!" *i.e.* "My, my, oh golly."

We talked until evening when the people of the house, who had been busy in farms and gardens, came home. Leman was active within one of the rooms preparing our supper and presently he brought it to us on the verandah. While we were eating, the little crowd that had gathered around us went away for their own meals.

The real business of entertainment begins in the evening, and when we had finished eating, Oyang Lawek squatted before us on his little platform, on which, in virtue of our position as guests, we were already seated, while his counsellors squatted nearby, the foremost of them also with us on the platform, while in a group on our right hand were seated the women and behind them the men not entitled to a place near the chief. Oyang Lawek called to one of these men who went into the chief's room and returned with two bottles of borak and a small tray with glasses. Oyang poured

out the drink, first tasting it himself and throwing a little through the floor as a libation to the household gods, and handed two glasses to his wife, who was seated on the floor beside us. The song of welcome was sung by an old woman, the others joining in the chorus. Occasionally a song is sung in Malay, though not many are capable of this feat, but at Long Atun was a famous singer who had sung to us before and now followed the old woman. He was a middle-aged but somewhat withered man, whose voice was wonderfully clear, although, as is the custom, he sang through his nose. The song was long, but I remembered the first few phrases sufficiently well to write them down the next morning. These songs are sung with a marked lilt, incredibly exciting rhythm, and this particular one commenced :

“ Saya kāsī borāk danang tuān—
Sebub sayah sūka baik ini tuān——”

which is to say :

“ I give borak to the tuan
Because I like the tuan,”

and so on, with a long list of our doings at Long Lejok and many regrets for our departure. What a pity, he sang, that our fathers and mothers, our brothers and sisters, our wives and our children, were not with us, for then we might stay, for we liked the “ orang ulu ” and his women and his children ; but alas ! we had soon to go to Singapura and then to Airopa, which is very far and where it is often cold—and a lot more about the insects and plants we had collected and our many curious doings among them.

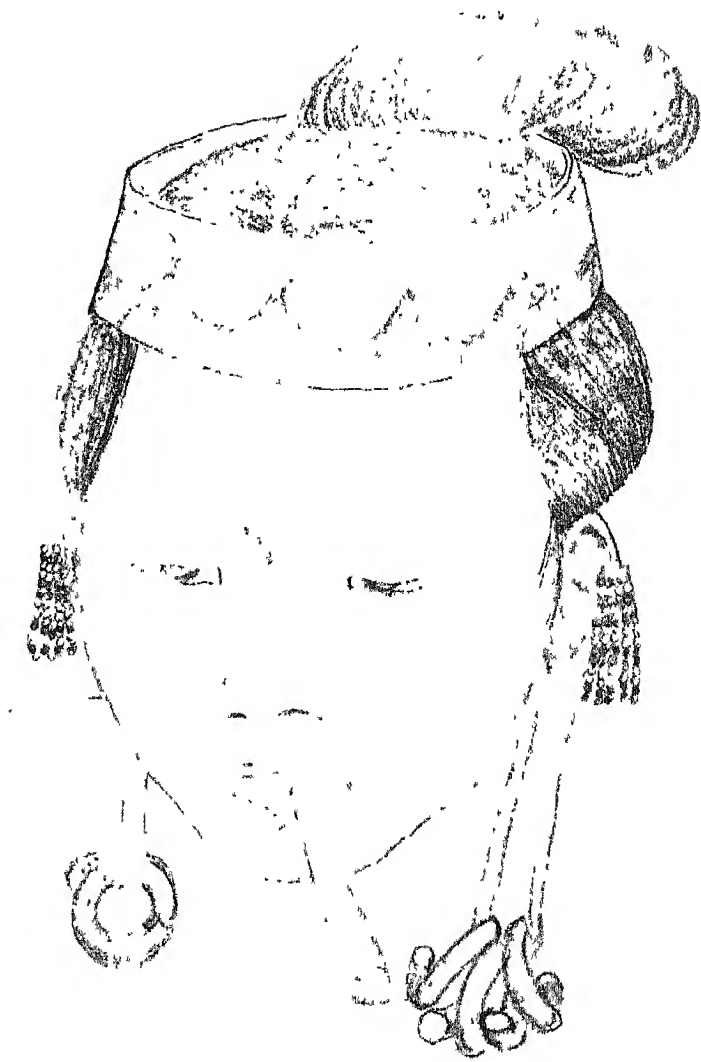
At the end of each verse the whole house joined in with crashing deep-nasal intoning, repeating the two words “ ini tuan.” The effect was electric, building up higher and higher a reiterated suspense, a musicless melody of vigour and friendship and thrill.



"Doorknobs"

The next day we set off early in order to make up for lost time. We intended to stop a little while at Long Miwah to apologise for having failed to keep our appointment with them. But with one factor we had not reckoned. Among the womenfolk who had visited us at our camp was Lodyok Blungan, the only child of a comical ancient Tama Lodyok Kebeng, afflicted with elephantiasis. She was distinguished from most of the other women by wearing, instead of several copper rings in her ears, large brass ornaments from which we gave her the name of "Doorknobs." "Doorknobs," though behaving with much coyness, had succeeded in attracting attention. She was about seventeen years old, and her arms, unmarked yet by tattooing, showed her to be unmarried. Like most of the women she had a plump, round face and somewhat flat snub nose, but in spite of this—or perhaps because of it—was, in many ways, a most charming person.

We seated ourselves, and presently Lodyok and two of her friends came and squatted beside us. One had learned by this time to expect a certain familiarity on the part of the women who occasionally visited the camp, but I was totally unprepared, and not a little surprised to find, without the least encouragement on my part, a pair of arms flung round my neck, and the black slanting eyes of Lodyok gazing amorously into my own. We had already announced that we did not intend to stay very long and resisted the blandishments of these young women. But an even more formidable person approached. Labang, sister to Morah, our headman, was the dominating influence, in her brother's absence, at Long Miwah. We knew her of old, and, though she was of more than somewhat uncertain temper, we were great friends. She refused to hear of our going on that day—it seemed inevitable afterwards, and kept on being inevitable every house we arrived at—and we consented to stay. In point of fact, it did not matter greatly that we should keep



Omung

he nys i Len:

The ears are prolonged with weights until it is almost possible to put the

to our schedule. No sooner had we agreed upon this course than Doorknobs cried, "When will you bathe?" But we replied, "Not yet," and ordered our luggage to be brought up from the boat. We saw that it was being carried into the room in which the Doorknobs family had their abode. It happened that her father, being a senior man in the house at that time, had been appointed, temporarily, Penghulu, until Morah, who was absent, should assume that office in place of Tingang Saong, who had recently died. It was therefore perfectly proper for us to be lodged with him, but it would also have been proper for us to have been put either in the room of the dead Penghulu or in Morah's room. We suspected a plot, and the importunity with which Doorknobs and friends begged us to bathe, made it seem probable that they had planned out our visit beforehand.

When the sun was lower we put on sarongs and prepared for our evening bath. We were not allowed to go unaccompanied, the dames followed us to the water's edge. With them came a fat, dwarfish creature, who seemed to occupy the position of general servant and buffoon in the girl's household. No sooner were we in the water than the three of them, with shrieks of laughter, set about splashing us violently. We returned the splashing with interest, but when they joined us to swim in the river we were no match for them, and in spite of his water-polo blue, Hobby was outstripped by Lodyok, encumbered though she was with the drapings of her sarong. It was pleasant to watch this girl who, on land, always moved with such deliberate grace, twisting and gliding with startling rapidity beneath the clear water, her red sarong and long, black hair streaming behind her.

We dried ourselves and climbed back to the house for dinner and the evening entertainments. The funeral, a month previously, of the Penghulu, had greatly impoverished the people of Long Miwah, and there was no borak forthcoming in the evening. But our gramophone

and half a dozen records of Ellington music proved an ample substitute as a means of evoking high spirits.

It was fortunate that Hobby discovered in himself a genius for entertainment of this kind, and a large audience seated themselves around us. "No, Tuans," they said, "this time you shall dance." So, with ungainly steps, we pranced around to the tune of a foxtrot. Encores were unceasing until we conceived the notion of trying to teach these people some simple English games. The men eagerly took up leap-frog, and for a short time the beams of the floor shook all up and down the verandah. But leap-frog did not satisfy the women. It was not sufficiently ludicrous. So we tried ring-a-ring-o'-roses. This was a great success, but exhausting. The triumph of the evening came when, with a short stick, we taught them to bend their heads and hands upon it and walk round in circles. The first victim was our own "Uncle George." "Uncle George" was a kindly soul, beloved of everyone, and no one enjoyed better than he a joke against himself. All unsuspecting, he bent over the stick and obediently turned about it three times. "Now," we said, "get up and walk." He stood up, took one step, and fell headlong into the shrieking crowd of women. Everyone was eager to try, and one man, who, for some reason had a head impervious to giddiness, strutted about proudly, having twelve times encircled the stick and walked away totally unaffected. While these games were going on, Door-knobs took it into her head to decorate us, loading us with bangles of rotang and silver, placing upon our heads the small beadwork hats worn by the women on ceremonial occasions and completing this feminisation by suspending rotang loops over our ears in imitation of their own highly extended lobes and hanging on to each a couple of pounds of copper rings.

There had been heavy rain during the day, and this delighted the people of Long Miwah, for, they said,

"You won't be able to go up river to-morrow." And so it was, for when we awoke in the morning the Tinjar had swollen into a huge and angry flood which would have made it impossible to continue beyond Long Lobang, only about a mile away. We resigned ourselves to a whole day of pantomimicry. This delay meant that we should certainly, if we were to complete our programme, be in need of more rice to feed our coolies. But the heavy flood did not make it impossible to travel on the river below the point where we were now awaiting, so we sent off some natives with a note to our Chinese clerk asking for more rice and, a more immediate need, tobacco.

The demand on our tobacco was very great, for there was none at Long Miwah, and the women of Borneo are for ever begging, either for the native grown stuff, brought generally from the high Kalabit plateau, or for the red and bitter tobacco from Siam. We might have had sufficient, but for another of those indiscretions for which we were always paying. The day before we left camp, a man from this house, who had been helping Hobby and me in our work, had brought us a little packet containing a collection of somewhat mouldy beetles, saying that they were a present from his wife and that she would like, in return, a little tobacco. As it happened, there were among the beetles, one or two which we were glad to have and, without weighing the consequences, I replied that we would give her some when we visited her house. On the first day at Long Miwah, when we were seated at our lunch within the room of Tama Lodyok Kebeng, a large crowd of women pushed into our room, begging us to accept a very odd assortment of dirty bottles and packages from which maimed and half-dead beetles escaped in hundreds all around us. We remembered next morning to add to our note a request that our messengers might bring back with them killing bottles, lest we should again be assaulted in this

manner. The next day we noticed that many of the women had left the house and, in the afternoon, another collection was brought, this time including snakes and lizards, most of them sadly maltreated. But there were some interesting specimens among all this, and, besides, it was our business to collect them, so we religiously sorted out their gifts and promised tobacco later in the day should any arrive from downstream.

About six o'clock the messengers returned with rice, tobacco and killing bottles. The numerous amateur entomologists crowded into our room. I tore from the parcel about a quarter of a pound of tobacco and, giving it to a lad standing by, said, "Here, Gok, you do it!" With scrupulous care he divided up the gift, and each woman, as she received her scrap—enough for two or three of the thin cigarettes made from "sigup siam" clutched it as if it were treasure-trove and hurried away to her own dwelling. Meanwhile, Hobby was busily sorting insects, and I did my best to cram moribund scorpions, centipedes and a snake or two into a hopelessly inadequate bottle of spirits.

That evening a new entertainment was devised. We were seated as usual on the verandah, exhausted after an effort to inculcate the principles of the tango into the feet of numerous women, when suddenly the women jumped up screaming and huddled together against the balcony railing. Out of the darkness sprang a hideous figure with black face and staring eyes, the hair in a tangled gollywog disorder, and hands and feet hidden beneath the sleeves and trousers of an ill-fitting black garment. For a while it stood jibbering at us, startling the crowd with its sudden leaps. But the first spasm of fear passed, somebody laughed, and soon we realised that this was not, as we had first supposed, a lunatic, but one of the inhabitants of the house who thus sought to amuse us. Whether it was man or woman we could not tell, till eventually a tattooed hand appeared, and

looking around among the women we discovered that our hostess was absent. It was she, and she began a grotesque dance, arousing roars of laughter by her imitation of the antics of Hobby and myself.

When the harvest is gathered in at the end of March, the whole household gives itself over to merry-making, and the women disguise themselves and, for twenty-four hours, are allowed to abandon themselves to utter licence. It was doubtless from having partaken in these ceremonies that the old lady had got her proficiency in disguise, and probably her costume was one kept for such occasions.

Next morning, somewhat to our relief, the flood had subsided, and we set off for Long Lobang, whither Kemuchak and the other Punans had preceded us. There we left our large prahu, for the rivers into which the Tinjar divided were too small and full of rapids for any but a small boat. At Long Lobang is the small colony of Chinese traders who supply tobacco, rice and various trinkets to the natives. The head merchant, bowing and beaming smiles, shook hands and bade us be seated in his parlour, on the walls of which a photograph of Sun Yat Sen stared indifferently at us. Chinese cigarettes are never very good and often filthy, but our smiling host offered some which were a pleasant change from the native tobacco we had smoked for three months. Next, to Long Nibong where stands the Rumah Otong, the house of Otong. As we approached our crew commenced to shout the "lalo-lalo" which always heralds the approach of a big party. And from the Rumah Otong came the reply, the deep roll of a drum—BOOM-boom-boom! BOOM-boom-boom—a dactylic rumble that echoed in all the hills around.

Otong himself was awaiting our arrival and shook hands with us as we stepped on his verandah; a chief always awaits his guest within the house. Otong was, for a chief, a very young man; he was not more than

twenty-eight years old and was very good-looking save for the misfortune of being violently cross-eyed. It was about lunch-time and Leman was soon busy with a chicken which we had brought from Long Miwah. After lunch a desperate misfortune happened to us. Our gramophone, the only relief we had from perpetual talk, collapsed.

VII

HAPPY FAMILIES

When the women came back from the fields, Hobby took some photographs, trying to persuade them to be taken in their ordinary garments. We explained to Otong, and he succeeded in preventing them from running away for their silk sarongs and best ear-rings. But we could not obtain the pictures we desired. It was not from modesty that they refused to be photographed with their sarongs wound about their loins, but merely feminine vanity which made them fancy themselves more attractive with their bosoms covered.

I also made some drawings of some carved posts outside the house, first asking permission of Otong. He told me that they were put there two years ago, when the house was built, that the gods which they represented might make the men strong, the women fruitful, and the pigs and harvest plentiful. In former days the erection of these effigies would follow a head hunt, and they would be decorated, not only with plaited palm leaves, but with morsels of flesh of the slaughtered victims. On our return journey, though I had not noticed them before, I saw similar carvings at Long Miwah and, indeed, they are to be found near most houses.

The loss of our gramophone gave us an excuse for not repeating our performances of the previous two evenings, though they were eagerly demanded. Otong

seemed very eager that we should appreciate the hospitality of his house, for it was new and had only been set up recently by him and his followers who had seceded from one of the larger houses in the district. We asked if we might see some dancing, and the chief was the first to perform. He was a competent but not brilliant dancer. He was followed by another man who was loudly applauded as he stepped out from the crowd and evidently had a reputation as an entertainer. He did not deck himself in the accoutrements of war, nor was his dance by any means conventional. It aroused much laughter, and the chief feature of it appeared to be certain obscene motions of the belly which highly delighted the spectators. It is not often that one sees dancing of this sort, though we had one man with us, who was able, merely by contorting himself, to be extremely comic. He told us that he was imitating the "orang Kalabit," a people renowned for their drunkenness. But at the Rumah Otong there was also a woman who specialised in eccentric dancing, exaggerating all the movements of the normal woman's dance, a very slow and gentle affair, so that what ordinarily would have been a mere bowing of the head became a violent contortion of the whole body. She also gained much laughter and applause.

The dancers did not complete the peculiarities of the Rumah Otong, and we were particularly interested in the rolling of the tobacco. The everyday cigar is a simple affair, though requiring much practice to be efficiently manufactured. The tobacco is rolled in a piece of dried banana leaf of about four by two inches and tied by a strip in the middle. But at the Rumah Otong the cigars were rolled in a leaf some seven inches long and decorated with stripes and diamonds of lamp-black, made by rolling one or two strips of leaf obliquely around the tobacco and holding it over a flame till a portion blackened, revealing (when the strips were removed) the required pattern.

As the Nibong is a small river, tortuous and full of

rapids, and we had now two boats to manage, we needed to increase our crew. Some old men of the house wished us to hire these extra men and to take them with us as far as we were going, paying them wages until we returned to Long Lobang. We said that they ought to do as is the custom and lend us men to help us to the next house, where they should then leave us. Otong seemed quite willing that this should be so, and, in spite of the disapproval of elders, we got our way. At any rate, we imagined so.

In the morning, with five new men and Otong, who had decided that he would like to accompany us, we set off. The banks of the Nibong are steep, and the trees, in places, hang over the water forming a leafy tunnel. For five hours we struggled against the rapids, and several times we had to leave the boats and scramble over rocks while the crews, with much shouting, pushed or dragged the boats from one level to another. It was hard work, but they seemed to enjoy it, breaking out with every fresh effort into rapid cries of "Tchai-tchai-tchai-tchai!"

Our destination was Long Kebak, a house belonging to a recently settled community of nomadic Punans. We found it perched on top of a steep knoll, and, with difficulty tying our boats in the rushing water, we disembarked.

About a hundred feet of steps, cut in narrow logs, lay in a zigzag from the river level to the floor of the house. Compared with the houses of the other tribes, it was a poor affair. It consisted of some half a dozen rooms. The verandah was narrow and the roof low, and the one room into which we ventured was dirty and disordered. We had not been long in the house before we felt glad that Otong had come with us, for the Punans are yet very timid people and unaccustomed to strange visitors. But few of them, among the men, can speak Malay and none of the women. Open-mouthed, they

stood or sat around us and, without our gramophone to divert their attention, we felt very like circus exhibits.

Kemuchak and Maran were very anxious that we should meet some of the people from the two houses farther up the river, Long Lapau and Long Buyau, whence they themselves came, and asked permission to go on at once and bring them down for the evening.

The Punans are supposed to be the descendants of the original peoples of Borneo, while the other tribes are said to have immigrated from the mainland of Asia. Certainly in their customs and behaviour they are much more primitive than those of their neighbours. Until quite recently this particular group, like others in parts of Sarawak, lived a wandering life in the forests, moving about in small parties, living on roots and the game, shot with poisoned darts from their sumpits (blow-pipes) and sleeping in rough shacks built of leaves and sticks. Their manners are markedly less refined than those of the Kenyah and Klemantan peoples. They were very greedy of our tobacco, and immediately we gave them some, shared it among themselves, not offering to make cigars for us, and one young man came up to me and, putting his arm around my shoulder, begged me, since he was one whom I had met before, to give him, for acquaintance sake, extra tobacco for himself. "Muli! muli!" I cried, and he left me, for that is a powerful word, best translated as "Scram"! fortified, perhaps, with an opprobrious epithet.

When we had finished our tea, Kemuchak returned, followed by some fifty men and women. We were looking forward to a dull evening but bethought us of our half-empty bottle of whisky. So I said to Otong, "Is it good to give drink to the chief?" and he replied, "Surely it is." Our men, judging from the bottle which Leman brought to us that we were going to try to brighten up matters, gathered around, and, seeing me pour out some whisky into a mug and hold it towards the

chief, raised a cheer. He was a glum old fellow, and to cheer him up Hobby and I sang to him "Clementine." But his expression did not alter, and he tossed off the drink and handed back the mug without a word. But if we had not been successful with him, we had succeeded in showing his people that we were human beings and not strangers from another world. They began chattering and laughing, and presently Kemuchak began to dance. The little house was thronged with people, but eventually all were seated upon the verandah, we visitors among the women, who examined us with great curiosity. The people of Borneo are not a hirsute race, and to these women the hair on our legs was a source of immense delight. Our clothes, too, were minutely examined and, one by one, they discussed the texture of our shirts, trousers and socks.

The children joined freely in the fun, and six little girls, aged from about five to eight, danced together, one behind the other in the manner of older women. Presently we were called upon to provide our share of entertainment and again we found ring-a-ring-o'-roses a great success and, as more and more women joined in the circle, the tumult rose to a great pitch, and at "and we all fall down," Hobby and I lay smothered beneath a heap of small shrieking females.

At last we got to bed, completely worn out. We rigged up our beds and mosquito-nets on a small platform on the verandah, but didn't sleep. The old chief had heard from Otong that we should wish to borrow five of his men, and he was arguing vehemently with Tama Ukat Wan. He took no notice when I asked him to be quiet and, at last, finding it impossible to silence him with polite requests, I got out of bed, cursed him roundly in English, with sufficient violence to frighten him and put out the lamp. For a while he sat muttering in the dark and then took himself off to his own room.

The people of Borneo are monogamous and have a

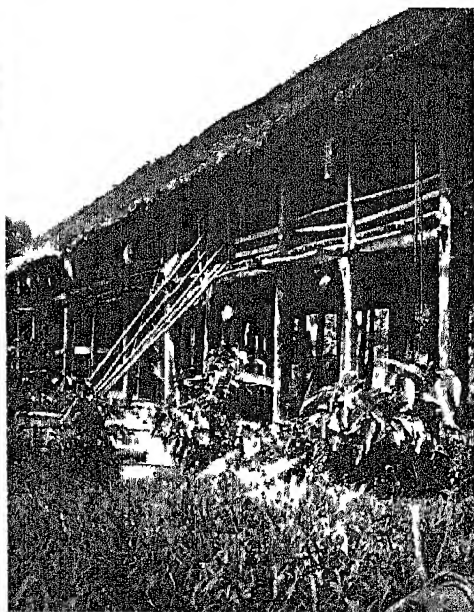


Water is often carried
in sections of bamboo
stem.

Carved posts at Long Miri.



A long house.



well-defined code of matrimony. The young man who seeks a wife finds some excuse to visit the "door" of the girl upon whom he has set his choice. He takes with him his *sapeh* and, as he talks to her, he strums on its strings, sometimes singing as well. By various signs he soon knows if his advances are favoured. He will hear his beloved playing tunes on a small instrument which she twangs like a Jew's harp against her teeth, calling him to her. When he is with her she rolls tobacco for him, and to show her affection she ties the cigar near to the mouth, instead of in the usual place, the middle. As they become yet more friendly, she takes his head in her lap, that she may pluck out his eyebrows with little brass tweezers, in return for which service she invites him to scour her hair for lice. Kissing, as we know it, is not practised by Ulu lovers. The time draws near for some definite settlement to be made, and the wooer commissions one of his friends to inquire of the girl's parents if they are willing for him to marry their daughter and to settle the payment which he shall make for her. Matters reaching a satisfactory end, the young man becomes a member of the girl's household. She may not belong to his own house or even be a member of the same tribe, but in any case he dwells with her for a year. If at the end of this time all has gone well, he takes her away to his own home. Until this is done, the girl is not bound to him and, even if there is a child, the man is under no obligation to accept her as his wife, nor does the fact of the girl already having had a child depreciate her chances of obtaining another husband.

Children, especially boys, are much loved and desired in the Ulu, for mortality is high in childhood, and often we heard a chief bewail that there were not enough young boys in his house. But what children there are seemed to us to be very healthy and cheerful; indeed, I do not remember once hearing a baby cry or seeing a child punished. A child is not named until its third or

fourth year, and Hose says that until that time "it is spoken of as 'Ukat' if a boy, 'Owing' if a girl, both of which seem best to be translated as Thingummybob." The naming of the child is a ceremony of great importance in which the gods are invoked to watch over it. On the naming of his first child, the father also changes his name, assuming the title of Tama; thus, a man called Match, when his first child, a girl, was named Deng, became Tama Deng Match, and his wife also changed her name to Tina Deng. A grandfather prefaces his name with Laki, and a father who has lost his son carries the title of Oyang, while a son who has lost his father is called Uyau, or, if it is his mother who has died, Elun. This is by no means the end of the complications of nomenclature. Quite unwittingly, I found that I had committed a breach of etiquette. Lidam had a younger brother whose name, he told me, was Wan. About a month later, this boy came to our camp, and on my greeting him, saying, "Hallo, Wan!" I was surprised to see him look suddenly very embarrassed, and some of the others who were with us cried with alarmed voices, "No, no, his name is Bau." They refused to explain what had happened, but I remembered that sometime before Lidam had gone up river to see his mother and the people of his house had refused to allow him to come ashore because his family, owing to the illness of his mother, was *pantang*, taboo. It is the custom whenever anybody is ill to change their name so as to deceive the evil spirits who are believed to be struggling to secure the spirit of the sick person. As a prophylactic measure, members of the same household may also change their names. This, of course, was what had happened to Wan. Incidentally, his new name, Bau, meant "a stink," thus making him an even less likely object for the desires of maleficent demons. Another curious custom is that which forbids one to ask of anybody his own name. Here, again, we made mistakes, but

soon learned that the polite thing to do was to inquire of somebody else. It is much to the credit of Bornean intelligence and courtesy that, however we might offend against custom, no exception was taken, and often we were good-humouredly corrected.

Next morning we inquired of Otong the best way to get to our next stopping-place, the house of the high-chief on the Dapoi. He took a box of matches and made with them a little map on the floor. We then bade him good-bye and set off up the Nibong. For three hours we struggled with the rapids until we reached the house at Long Lapau, where we left our boats to climb over the watershed which separates the Nibong and the Dapoi Rivers.

We found an excellent path. There was even a seat placed on top of the hill. After walking for about three hours through very beautiful forest we reached the river Burroi, which wound backwards and forwards among the hills so that we crossed it many times before we came to the Dapoi and two large prahus in charge of one who said that he had awaited us there two days.

In the headwaters of the Tinjar, where the smaller rivers wind in and out among the foothills of Mt. Kalulong, the steep banks of the rivers must make it difficult for the natives to find suitable sites for their houses. Most of them are built on top of small hills or knolls, and where the Dapoi rushes swiftly round in almost a hairpin bend, the great houses of the Penghulu are set upon a sharply rising peninsula. The followers of Penghulu Balan Deng are so numerous that they require eight large houses. Able to muster several hundred warriors, he stands as a bulwark between the peaceful people of the Tinjar and the dreaded Iban Dyaks of the Rejang.

We remained two days with him. Of middle age and sturdily built, he was a man of great authority and, in the evening, before the drinking and dancing commenced,

he made a short speech to the assembled people. I don't know what he said, but the manner was of one accustomed to command and full of regal dignity. We were impressed. Not one of his audience breathed a word while he spoke, and I felt that none there would have dared to question him. If there was something of the king about Balan, there was no less of the queen about Bungan his wife. She was a woman of surpassing beauty, for her high position had freed her of the heavy tasks which so soon mar the looks of the lesser women, and, in middle age she yet could rival the youngest. They were an affectionate couple, but, to their great regret, were childless, for both were very fond of children, and often some twenty or thirty small boys and girls would come into their room, where they were allowed to play freely. Hobby, with a few corks and matches, delighted everyone with some simple parlour tricks, and Bungan, seeing the young ones so pleased with our company, exclaimed, "Tuans, these are your children!" It is a favourite compliment in the Ulu thus to make one a relation. Lodyok and her friends at Long Miwah would often make up a little song: "You, Tuan, are my brother; Tuan Hobby is my brother; and I am your sister."

All sorts of simple games amuse these people, both young and old. There was one very much tattooed old man who sat for hours trying to master a little trick with two pieces of wood which Hobby had shown to him. I was curious about this man, who was evidently an important person, and did not look as if he belonged to the house, for one can usually distinguish tribal differences by facial characters. He was a leader of head-hunting days, for the backs of his fingers were tattooed. I found out later that he was an old chief from a Kayan house on the distant Baloi River, a famed killer, too.

We were well supplied with tobacco, and much borak must have been consumed during the two nights we were

there. The dancing, particularly of the men, was more than usually spectacular. Our Punan, Kemuchak, was often called on to perform, and gained much applause. He was a short and extremely muscular man, whose agility, which far exceeded that of most of his fellows, was almost superhuman.

After the drinking, food was brought forward; a great bowl containing a large mass of a white glutinous substance, a sort of blancmange made from sago. This was placed in the centre of the circle of men, while to each man was given a plate of stewed pig. As a sign, perhaps, of the nobility of our hosts, we were not allowed to eat with our fingers, but were given chop-sticks made of a bent strip of bamboo. It was surprising to see the deftness with which our men conveyed the food to their mouths. The sago was rolled in a ball by twisting the chop-sticks and dipped into the juice of the meat, while the meat itself was eaten separately between mouthfuls of sago. There was no doubt that the men were conscious of the honour done to them, and Lidam, a young boy of about twelve years, was almost bursting with suppressed excitement. Bungan invited us to join in the feast, and we squatted down with our men, while she fed us herself with chop-sticks, lest with our white man's clumsiness we should disgrace ourselves. It was by no means unpleasant food, though lacking the savour of salt and other condiments. We washed it down with more borak, everlastingly alcoholic borak.

Two nights of feasting had left us heavy-headed, and we awoke on our second morning at this place scarcely in the best of spirits, and told them to load the prahu which Balan was lending us to take us to Long Lobang. But though surfeited of borak, we were not allowed to leave without drinking yet another potion. This custom of drinking a "parting farewell" is a pernicious one for, though it is kindly meant, it is seldom welcome after the inevitable abundance of the night before. We

swallowed our half-pints and staggered to the boat, flung ourselves down at full length and prepared to sleep till we should reach Long Lobang. But there was yet another custom, of which we had heard but had not so far experienced, a womanly privilege to speed the parting guest. Bungan and her handmaidens followed us to the river bank, each concealing behind her a plate. No sooner were we comfortably settled than, with much laughter, they doused us vigorously with water. Sore-headed as we were, it was a lousy joke. We leaped from the boat and, with the aid of our crew, administered sound duckings to as many as we could lay hands on. Soaked to the skin, and with all our bedding and food wet through, we pushed off, leaving our friends waving from the bank till we were out of sight.

The Dapoi, a swift winding river, unites with the Paung before flowing into the Tinjar. At Long Dapoi is the Kenyah house of Pejingan. "Will you stop here, Tuans?" said Tam Ukat, but, oversatiated with Ulu entertainment, we replied "No!" and sank again into sleep. (Three days later, back once more at Base Camp, we heard from Banks and Moore, who had followed us down the Paung that same day, on their return from Kalulong, that they had stopped at this house and found Pejingan in a raging temper. He had brewed an enormous quantity of borak in anticipation of our coming, only to see us go swiftly past his dwelling. Fortunately, by visiting so opportunely, they had managed to appease his wounded pride, and got the headaches intended for us !)

That evening one of our men fell while playing leap-frog and tore his ear rather badly. He came, of course, to have it dressed, and his friends roared with laughter as he hopped about under the sting of the iodine. It was not a pleasant task to doctor him, for he suffered severely from korap. This disease is caused by a fungus which affects the skin, causing it to dry and scale off in



The entomologists at
work inside the sandfly
net.

complicated and elaborate patterns all over the body. It is very common in people of all ages, and it is pitiful to see small children covered with this foulness. It can be cured, but the treatment is expensive and there is, as yet, no means of exterminating it. In the old days, during tribal warfare, sufferers from korap were always given the posts of sentries at night because the irritation kept them awake.

As we had promised to spend the next night at Long Atun, there was no need to hurry away in the morning, and we spent it helping some of the women to cut up and roll banana-leaf for making cigars. The youngest leaves are chosen before they have unrolled. The outer portion is stripped off from the central vein and dried in the sun. It is then cut into strips about a yard long and four inches in width, and rolled into bundles which can be conveniently carried in the tobacco jar worn by every man.

Our men had evidently related the manner of our departure from the Penghulu's kampong, and Labang asked, with a twinkle in her eye, if we were still wet. I judged that a repetition of the joke was pending, and begged a pax on throwing of water. "Oh no, of course not!" But the twinkle did not leave her eye. When we were ready to go we saw her whispering to Lodyok, and we hurried down to the boat and prepared to forestall them by getting away before they had time to complete their designs. But they were too quick for us. Before we could push off they had come to the waterside and very innocently approached us. Seeing they had empty hands we thought perhaps we had wrongly suspected them. We offered to shake hands. O feminine guile! O masculine simplicity! True, Labang had kept her word, and we got dry-skinned into our prahu. But not unscathed. With faces, clothes and arms smeared and beplastered with soot, which they had wiped on their hands and the bottoms of their cooking pots, we hurried away downstream.

It did not take long to reach Long Atun, for the current was so swift, our men scarcely needed to paddle. "For two days," said Oyang Lawek, when we arrived, "the women have waited at home for you. To-day they could wait no longer and are all gone out to the fields to work." At six o'clock they came home, and after dinner all sat down to enjoy the last evening of our Ulu holiday. But there is a limit to all things. For a fortnight we had provided a sort of travelling circus to the Ulu folk and now, though the spirit was willing, the flesh was weak. It was, perhaps, a little unkind of us to walk steadily to bed at ten, for our hosts plied us liberally with borak, but by now even the prospect of sticking pins through another 10,000 or so bugs seemed a welcome change from these boisterous junketings.

We were now looking forward to a few days' peace and quiet in camp, but to our horror, when we went down to bathe the next morning, who should we see awaiting us in a prahu but Doorknobs and her friends. We hastened home, and the next day fled 4000 feet up to the top of Mount Dulit.

WHERE'S THAT HEAD?

By

C. H. HARTLEY

YOUNGEST and blondest member of our party, Cub Hartley chose to go off at the end of the expedition and live in one rather "civilised" house on the main Baram river for some weeks rather than travel or explore. This he did with notable success and valuable consequences as he tells in his clear, honest way, fingering fountain-pen and Bornean skull.

T. H.

WHERE'S THAT HEAD ?

IN the Baram Valley, a hundred miles up from Marudi, there is a scattered group of limestone caves, the home of large colonies of Esculent Swifts. Their nests, dotted in clusters on the cave roofs, are built entirely of a sticky white secretion produced from glands in the throat, and, in the form of Birds' Nest Soup, constitute a famous Chinese delicacy. The Baram nests, which are of the finest quality, are a source of some wealth to the Kayans of Long Laput, in whose territory the caves lie ; though recently there has been a serious decline in the total crop. The Government has fixed a close season for nest-gathering, but this has not stopped the decline, and it is generally assumed that neither Kayan nor Chinese trader treats the regulations with seriousness. However, when awkward questions were asked, the Kayans strongly protested their innocence, and accused the bats which infest the caves of devouring the nests wholesale. It was to make a study of the caves and to investigate this (curious) story that I arrived at Long Laput at the end of October, after three months' work at the expedition headquarters on Mount Dulit.

Like most up-country villages, Long Laput consisted of a single building, supported on ten-foot piles, and stretching along the river bank for nearly three hundred yards. A great verandah ran the whole length of the house, and at intervals ladders led down to the ground. At the back of the verandah was a series of apartments, each occupied by a family and its dependants. When I arrived, the place seemed somnolent in the midday heat. Mangy dogs slept in the sun on the verandah, and a herd of pigs routed half-heartedly in the mud beneath the house.

There were few people about, the majority being away at their farms ; but board, lodging and labour were all prepared for me.

Tama Paya, in whose room I established myself, was a cave-owner and a prominent Kayan aristocrat, and it was he who supervised all my movements while I stayed at Long Laput. But at first there were few signs of the aristocrat in him, for his manner was deferential and almost apologetic, and he seemed to lack any semblance of self-confidence. I was used to the easy companionship of the Tinjar men, and this strange attitude was something of a shock. Though I got to know him very well before I left, he always tried to behave like a trusted A.D.C. deputed to keep minor Royalty out of mischief. He was a simple soul, unburdened either by ambition or an active mind, and probably rather lazy. In a house where all the best people built magnificent extensions to their living-rooms, he was still content with a long, narrow room conforming to the general house plan, although a cave-owner and second man in the tribe. " Next year I will build one," he always used to say.

There were no Kayans in the Tinjar Valley, and I had heard that they did not possess the social gifts of the Kenyahs and Sëbops. Tama Paya's extreme deference tended to confirm this idea, but I soon found that this was an exception. There was no difficulty about getting to know the people of Long Laput, for every evening I had more invitations than I could cope with. I would set out every night after dinner on a round of calls, wandering down the verandah from door to door, and sitting on the floor rooms dimly lit by smoking oil-lamps. There was little formality on such occasions ; the girls rolled us endless Kelabit cigars, and borak was circulated freely. Although the previous rice harvest had been none too good, there seemed to be plentiful supplies of liquor in the house—a result, probably, of the steady income from the sale of nests.

At the Base Camp and at other Long Houses I had visited, an evening party always involved singing and dancing. Here the cup was tendered without a song, and every evening passed in conversation, the topics ranging from hunting and nest-gathering to the exploits of previous visitors. It was a relief to find that people showed very little curiosity about the external world; though there was one man who cross-examined me for an hour on the Suez Canal and the Japanese invasion of Manchuria. Above all, they liked to laugh, and the talk never remained on a serious level for very long. Unlike our Base Camp visitors, the girls here seldom joined in the proceedings, but remained discreetly in the background rolling cigars.

The proceedings were perhaps less hilarious than a Sëbop party, but a better medium for getting to know people. After a few evenings I found a number of concrete personalities emerging from the welter of Kayan faces, some pleasant, some dubious, but all hospitable. The house was occupied by an amalgam of three tribes, each with its own headman and section of the verandah, and this unusual system seemed to work better than might have been expected. For ceremonial purposes two of the groups had completely amalgamated, but the third, living in a detached part of the house connected to the main building by a covered gangway, still remained independent. This was the poorer section of the house; it held no important cave-owners, and most of its inmates were away at their farms during my stay.

Tama Tinjan, formerly Penghulu of the three tribes, had been dismissed by the Government during the war for refusing to bring out his men to help in a punitive expedition against the Ibans. He owned a large cave, and still lived in the finest room in the house, with a large group of retainers. He was a small man, with a sour, brooding expression, intelligent but uninterested. He hardly ever laughed, and his attitude at times was

almost cynical. I never inquired into the rights and wrongs of his case, beyond examining a somewhat bald account in the *Sarawak Gazette*, but there must have been some good reason for his refusal : the Kayans have never been exactly pacific.

To be Penghulu is to be something great, for, unlike the Ibans, the Kayans and Kenyahs have a deep respect for their chiefs. The loss of such a position would be enough to embitter most men, and it would not have been strange to find Tama Tinjan hostile towards any white ; but throughout my stay he was the soul of hospitality. In spite of the Government's action he was still generally regarded as the leader of the house. The nominal Penghulu was a shifty individual by the name of Akum Deng, but no one seemed to think him very important. In Tama Tinjan's own tribe the unusual step had been taken of appointing his wife chief. Lalan was undoubtedly a very remarkable woman, who would, in any case, have exercised a good deal of influence, but there was naturally a number of ceremonies in which she, as a woman, could not take the lead. In her youth she must have been beautiful, and even now, in middle age, she was not without good looks. She spoke Malay fluently, and was the only woman who held forth on an equal footing with the men at evening parties. She had a quick and sometimes caustic way of speaking. Everyone seemed to hold her in great respect, and she was reputed to rule her husband with a rod of iron.

Akum Deng, head of the second tribe, I have already mentioned. His manner was smooth, his speech mincing, and altogether he suggested the plausible old Public School crook. I never really fathomed Jalong, head of the more independent tribe. He blinked continuously, and talked with a guttural accent which was very hard to understand ; but he, too, was hospitality itself. On occasions he addressed me for hours without stopping, and I wish I had been able to understand him better,

for he was more ready than the others to discuss the beliefs and ceremonies. In the early stages I never pressed people for these details, and they seldom volunteered them.

Among the Kayans and Kenyahs (and to a less extent the Barawans and Sēbops) there are three distinct classes of society, and intermarriage between them is unusual. The aristocrats have a number of dependants who do the bulk of the work on their farms and for whose support they are primarily responsible. The middle class for the most part look after themselves, while the members of the lowest class are something between serfs and slaves. Among the more conspicuous of the remaining aristocrats was Aban Deng, Tama Paya's younger brother, who had a large room at one end of the house. His face was sensitive, alert, and full of humour, with a curious streak of wildness ; but he was a sensible person for all that, with twice the personality of his brother. He owned two caves, one small but extremely productive, the other inhabited by nothing but hoards of bats, against which he fulminated daily. A connoisseur of liquor and company alike, he seemed to enjoy entertaining selected friends, and I consumed several excellent bottles of borak in his room.

It was far harder to get to know people of the middle class, for they naturally had less leisure, and were often away at their farms. They were not debarred from attending evening gatherings in the rooms of aristocrats, but they seldom took a leading part in the conversation, and were never formally introduced. In the end I had only one close friend from the middle class, a man named Bit, who helped me with my cave work and hunted for me at other times. He had been up to the Kalabit country, and I cannot imagine a better man to have on any journey, for he possessed prodigious strength and unfailing good-humour. At Mount Dulit Camp he would have been invaluable, for he was a fine hunter. He

suffered from korap, an unpleasant disease which makes the skin dry up and peel off, and often seems to produce an acute inferiority complex ; but he seemed to pay no attention to it. He was a noted singer and a raconteur of Rabelaisian anecdotes told with an artistic economy of words. One would not describe Kayan conversation as coarse ; their humour is of the banana-skin type, and their stories usually centre round some unusual sexual incident ; but you will hear fouler tales in a Cambridge college any night of the week. They do not understand the *double entendre*, but I found that modified versions of some of Balzac's *Contes Drolatiques* were greatly appreciated. Either they have the same diffidence about telling doubtful stories to total strangers that we have, or else they had already learnt that Tuans could be shocked. At all events, for the first few days their conversation was above reproach, and it was Bit who first ventured over the borders of strict propriety. After this, story-telling became general, but the supply soon proved to be limited. The Kayans were not inventive genii, and there was no local Stock Exchange to act as a reservoir ; but fortunately they never tired of repeating the same story, till certain phrases became catch-words. The same thing happens among groups of Englishmen.

From the social point of view it was indeed lucky that I could afford to spend three weeks at Long Laput. There was time for everything, and households did not have to compete bitterly among themselves for the pleasure of entertaining me. I could spend my days looking at caves or hunting in the forest without feeling that I was disappointing my hosts, and I could pass borak-free evenings in quiet conversation. It must take many months before a stranger, particularly a Tuan, is accepted as part of the landscape, but it was not many days before the first novelty of my presence had worn off ; and the relationship of a friend is better than that of a distinguished visitor.

Long Laput lies in the flat country, and the Baram here is a broad, deep river, its featureless banks lined with secondary jungle. It is the drab river landscape that greets one all the way from Marudi to the hills, and I knew it well and was tired of it. The bird caves could only be reached by water, and to relieve the monotony I took a paddle, and learned the queer bent-arm stroke that all the people of the Ulu use for long-distance work. The power is applied chiefly by a swing of the shoulders, the paddle being brought sharply against the side of the boat half way through the stroke, and the finish being obtained by straightening the outside arm. Once he has mastered this art, even an untrained man can paddle for hours without needing to change sides. For the most part we travelled early to avoid the intolerable glare of the sun on the water. Long before the heat of the day we would be traversing side streams of the Baram, cool, shady tunnels in the forest, roofed by the canopies of tall trees. Sometimes the streams had burst their banks, and the boat threaded its way through a maze of tree trunks, the bow-man cutting the lianas which hung in our course.

The cave entrances were usually narrow muddy fissures in the side of some low limestone mound, through which, in the daytime, flowed a continual stream of swifts. Within the entrance a long gallery slanted downwards, widening out into more spacious vaulted chambers. On the whole, there was nothing spectacular to be seen: these caves were strictly utilitarian.

There were exceptions, however. At Lobang Tukung a small river came cascading out of the cave mouth, and the air was full of a subdued rumbling. You squeezed through a narrow hole above the waterfall, climbed cautiously down into the river, and fought your way up against the current, clinging to slippery niches in the side wall. The thunder of the water was overpowering, and it was a relief to emerge, after fifty yards, on a sloping bank of gravel. As you walked down the gallery the

noise of the water died away, and the cave was full of the rustling and twittering of the swifts. A flash-lamp revealed vast numbers of bats hanging upside-down from the roof, and, in the higher places, clusters of white nests with the dark tails of swifts projecting from them.

The air was damp and pleasantly cool, but heavy with the musty smell of bat-dung. Beetles scuttled over the floor or stopped to look at one gravely with twitching antennæ, while up on the walls clambered a revolting breed of large poisonous spiders. Scorpions, centipedes, snakes, and allegedly venomous lizards, added to the amenities of the place, and it was necessary to proceed with caution at all times. At intervals you would encounter traces of the nest-gatherer's activities—rough ladders, long bamboos for detaching nests from the roof, and bundles of sticks piled beside the ashes of a dead fire. It was popularly supposed that the bats would be discouraged by filling the cave with smoke from time to time. I never found any evidence to support this supposition; it might equally well have served to discourage the swifts.

Most cave-owners keep men permanently stationed at the caves to guard the nests and build periodic fires. They live in little huts in the clearings outside the caves, and there we fed, and sometimes slept the night. The dishes on such occasions were always problematical. Sometimes we shot big green fruit-pigeons, or hornbills, both of which proved incredibly tough. Sometimes the cave-wardens had built a fish trap, which yielded the usual tasteless carp and an occasional crayfish. In addition, there were prawns to be caught in the streams which flowed through many of the caves. If all else failed, a shot fired at the cave roof would bring down a shower of fruit-bats, and these, skinned and minced with our parangs, we stewed in the green stem of a bamboo. The mosquitoes, which seldom entered the Long Houses, swarmed in these jungle shelters, and it was a relief at night to crawl to sleep beneath a net.

Heading for home, we often stopped to pay calls at the Chinese traders' house or at the farms which dotted the river bank. Our quest here was fruit; little ripe bananas, limes, and green coco-nuts full of sweet milk. The jungle fruits on the whole were disappointing, though there was a kind of lichee which could be eaten in vast quantities. Most of the farmers seemed very casual about their fruit trees, but a solitary Chinaman living a few miles down the river was an exception. He alone had what could be termed a garden, and on several occasions he welcomed us with his mile-wide grin, and pressed upon us bunches of bananas, sweet limes, and tobacco of his own curing. His little house was trim and well furnished: there was even a chair. I noticed here and subsequently among the Lelaks of the Tru River, the contrast between the happy-go-lucky living of the natives and the industry of the Chinese. They are the traders and craftsmen of the Ulu, living in their own houses and travelling the river in big canoes, often with an outboard motor. The Kayans depend on them for their supplies of ammunition, clothes and red chewing-tobacco from Saigon.

One evening, in the dim light of Jalong's room, I met a very old man with tattoo marks on the backs of his hands, the privilege reserved for those who have taken a head. The advent, fifty years ago, of the English in north-eastern Sarawak brought an enforced peace to the peoples of the Baram and Tinjar, and with it died the practice of head-hunting. To-day it is hard to associate friendly Kayan faces with the idea of killing, and harder still to guess at the effect this killing must have had on the life of the individual. Head-hunting is a religion; the ritual survives, but the sacrifice has vanished.

In every Long House, suspended from the roof of the verandah, there hung a rack of smoke-blackened skulls, from which the flesh had long since fallen away.

Once they were renewed whenever the tribe moved house, but these skulls have done duty for forty years, and must continue to do so till the end of the Rajah's rule. At first sight they did not seem to play a great part in the lives of the Kayans. No native volunteered information about them : one looked at them, and passed by. If the taking of heads had any influence on the life of the individual, it must have passed away. The head ritual has survived because, like a constitutional monarchy, it is a part of the mechanism regulating social organisation, which people are unable to dispense with and reluctant to replace. It appears at relatively rare intervals, and in the course of four months I was the only member of the expedition who was lucky enough to see it.

There are two schools of thought about head-hunting, the Religious and the Personal. The one stresses the significance of the part played by heads in the collective beliefs of the tribe, the other the need for the individual expression of manhood. It seems certain that the heads were something more than a mere symbol of prowess, even among the Dyaks ; but Charles Hose, first resident of the Baram district goes further than this, and denies that they have any personal significance whatsoever. There is, however, evidence to show that Dyak mothers twitted the youthful suitors with never having taken a head, although, according to Hose, nothing as open as this ever took place among the Kayans. The cessation of head-hunting has brought security to the Long Houses and the isolated farms, and even now the older people speak of this as if it were some strange new luxury. There was no one who did not realise the economic advantages of peace, and no one who was prepared openly to lament the passing of the wild days. Yet in the period before peace was cemented there are plenty of records of the eagerness with which Kayans and Kenyahs turned out to join the Government in punitive expeditions. It is difficult to believe that this was due entirely to religious zeal.

The head cult is only a part of Bornean religion. Among all the tribes there is a belief in a supreme being, called by the Kayans Bali Penyalong, who rules over a group of lesser gods and goddesses, each controlling his or her appropriate section of the universe. The whole system is reminiscent of the Greek theology, though the Bornean gods seem to be more aloof and less directly concerned with mankind's successes and failures than were the Olympians. It is to the heads and the omen birds that the Borneans turn for the gratification of their personal desires. The birds, chief among which are the Brahminy Kite and the Spider Hunter, are watched with interest on all occasions, and have been known to provide an excellent excuse for not undertaking a tiresome journey. The kite is chiefly of importance at padi-sowing and house-moving. It receives periodic offerings, and seems to be credited with great powers in these two matters, but between whiles it is treated with the scant respect which its scavenging habits merit. The omen creatures are something more than mere indicators; they are endowed with a power for good or evil, and it is necessary to pay them the appropriate honours in order to avoid unpleasant consequences. Whether after that they will do more than merely abstain from harming you is their affair.

Various objects are credited with an abstract power known as Toh, which is akin to the Mana of the Polynesians. It is a force associated with an object, yet not an integral part of it, by virtue of which the object becomes an effector for good or evil. When a head is taken, it becomes strongly endowed with Toh, which does not seem to be identified directly with the spirit of the dead warrior, though it is possible that the custom originated in this manner. The Toh of the heads was perhaps the strongest factor in the religion of the Borneans, and, although the peoples were heartily afraid of their heads, no house could afford to be without them, so

great was their potential power for good. The beneficial effects were believed to be communal, but once angered, the heads might revenge themselves either on the house or the individual. Handling them was a particularly risky business, and when this was necessary some old man was usually selected for the task, on the ground that his remaining span of life was in any case short. It was believed that heads were ineffective after their transfer to a new house, and on these occasions elaborate subterfuges had to be resorted to, to get rid of them. A small shelter was built in the forest, and a long speech was made to the heads in which it was explained that a splendid new house was being prepared for them, but that during the building it would be necessary to move them to temporary quarters for a short time. It was a disgrace which the tribe felt keenly, that they had been kept for so long in such a mean house. When the new one was finished they would be set in a place of honour, and feasted as befitted their importance. In the meantime, would they please permit themselves to be moved? The moving was carried out, as usual, by very old men, and the heads were placed in the shelter, liberally supplied with food and drink, and abandoned. It was supposed that they did not discover the fraud till too late, and were unable to revenge themselves from a distance.

With Kayan and Kenyah spreading down the rivers from the Dutch border, Dyak working up from the coast, and Klemantan tribes lying between, there must have been much fighting from economic motives, with a consequent steady supply of heads. At the same time, there were certain occasions when fresh heads were required, and these inspired specific head-hunting expeditions. When a prominent person died a period of mourning followed, and certain restrictions were imposed upon the family, and sometimes on the whole house. The mourning ended with the return of a hunting party bearing fresh heads, when the whole tribe celebrated their arrival, and



A chandelier of grinning, blackened skulls adds a grim note.

made offerings to the old heads and the omen birds. There was nothing very heroic about these expeditions. Heads were needed, the cheaper the better. Isolated farms offered the best chances, and if a show of resistance was encountered, the party might well move off and try somewhere else. War in the forest and on the rivers was a matter of stealth and surprise, and hand-to-hand fighting was a rarity.

Nyau, the ceremony which ended the period of mourning, was a time of looking forward, not of commemorating the dead. Primarily it was, and still is, a martial occasion when every man wears war-coat and helmet, and at night the long verandah shakes with the tread of the war dance. Out of death the Kayans seek to enhance the strength of the living—to kill. It may have been for this reason rather than to increase the available Toh that heads were needed at this particular time. Every male who had been named, even the small child who could hardly walk, was sprinkled with blood and confirmed in his strength as a fighter. The welfare of the house as a whole was attended to by offerings to the Kite and the Heads, and detailed examination of the omens revealed by the livers of the sacrificial pigs. The background of the ceremony was the rhythm of the gong orchestra, and feasting and drinking which went on often into the following day.

Nyau survives to-day in a bastard form. The fresh heads are no longer forthcoming, but the martial rites and the offerings continue. The Kayans know no other way of coming out of mourning, so old heads are smuggled out of the house and brought home in triumph by a pseudo-war party. They play at head-hunting. The occasion is welcome for its dancing and drinking, and the offering to the Kites is still a serious matter. The Toh of the heads, however, seems to be wearing a little thin in the minds of the more intelligent, and to men who have never seen arms carried in earnest the war dance and

the bleeding of the warriors would have as little significance as an O.T.C. field-day.

One night, about a week after my arrival, the talk in Tama Tinjan's room turned upon my future plans. "Tuan, I think you will have to leave in ten days' time. We are having a celebration then, and it will be difficult for you to attend." At the time I did not press the point, and bit by bit more information was offered. It was Bit's mother who was mourned, and it was lucky for me that I came to know him so well. After another week paddling canoes up the swollen rivers and hunting in the forest, he actually invited me to attend, even offering to advance the date of the ceremony, but stipulating that if I was present, it should be as a Kayan, not as a Tuan. It seemed that there was only one difficulty. "If you take part, Tuan, you must sleep in the house for a fortnight afterwards, otherwise it will be bad for you." This was out of the question, as I had planned to explore Lake Bunoh, on the Tru River, in ten days' time. I said I would chance the consequences, and Bit indicated he was agreeable, adding "It would be bad for an Orang Ulu, but perhaps the Tuan is under a different influence."

The news of my coming conversion to the Kayan faith spread fast, and it was agreed (without consulting me) that the day following the ceremony should be devoted to giving me a Kayan name, and to merrymaking at my expense. There followed several nights of debate, when the possible names were reviewed, and the prospective parents wrangled among themselves. At length only two contestants were left, Tama Paya and Lalan. I tossed a coin to decide, and somewhat to my relief Tama Paya won. It would have been more honourable to be the child of Lalan, but Tama Paya had been very kind to me. The actual name was supposed to be kept a secret till it was announced publicly at the ceremony, but I cannot think that this rule was observed, as Tama

Paya's daughters were shouting it at me the very next day.

Tama Paya had an unnamed son, which prevented him from taking part in the return of the warriors. He had become even more possessive as the time wore on, and he did his best to prevent me from joining in that part of the ceremony. A small war party, with the heads discreetly hidden, left the house the night before to spend a night up the river and to be met at dawn next day by the rest of the warriors. Bit asked me to join the advance guard, and I have always regretted that I did not. I had had more than a share of that in past months on Mount Dulit. It was Tama Paya's stories of discomfort which stopped me, and I remember that when I heard the rain that night I was somewhat grateful to him. There was an air of expectancy about the house, and earlier in the day my canoe crew, unable to contain themselves, had sprung on to the bank and given an impromptu war dance. I had a final argument with Tama Paya, who was still trying to stop me going up river next morning, and we went to bed mutually furious.

If you wake at four o'clock in the morning in a Borneo Long House, you will hear only the murmur of the river and perhaps the sound of a distant cat-fight. On this morning there was a rustle of preparation down the house, and a padding of bare feet on the planks of the verandah. As I crawled from beneath my mosquito net, several of Tama Tinjan's servants entered the room. I dressed myself in loin strap, war-coat and helmet, and came out to join the crowd on the verandah.

It was the Bornean equivalent of a frosty morning. The air was dank and cold, and a white mist swirled over the water of the Baram. There was no talk as we filed down to the canoes at the river bank, and no sound but the rattle of paddles against the boats' sides as we headed up stream. Around me spear-tips and gun-barrels gleamed faintly in the darkness, and brown arms

swung the paddles which drove the boat forward. Ahead a faint flutter of hornbill feathers marked the progress of the leading canoe. The boats slunk up the river hugging the banks, menacing and secretive, in a weird progress which forty years ago would have meant killing. Whether the other Kayans reacted to the atmosphere, I do not know, but to me it was full of suggestion.

As we headed slowly up the river, the light gradually increased, and the darker mass of the forest detached itself from the sky. Still the menacing atmosphere persisted, till we drew abreast of the shelter where the war party had spent the night. Then in a flash everything was changed. They came down to greet us, shouting and laughing, and there was a chatter of conversation as we disembarked. One by one we passed under a bamboo which dripped water, and was supposed to wash away illness, and then descended again to the river, where each man was wetted with a leaf and had a strip of bark tied around his arm. This "daun isang" figures prominently in many Kayan ceremonies. It is used to decorate the heads and the sacrificial poles, and bundles of it are carried by the women in the communal dances. Once again we climbed the bank to a little clearing, in the middle of which lay a single skull. One by one we approached with drawn parangs, and touched it with the blade. Honour was satisfied; we had killed in battle.

The talk and laughter diminished during this ceremony, and I studied the faces around me, trying to see if it had any obvious meaning to them. The old men who came first were grave and solemn. Tama Tinjan wore his usual air of cynical boredom. Aban Deng and Bit were in exuberant spirits, and some of the young men who had never been up river before were chattering with suppressed excitement. A few, having touched the skull, leapt in the air with piercing yells. Already, it seemed, the ceremony was losing its original meaning,

and surviving, like a Guy Fawkes bonfire, as something which amused those who took part in it. Perhaps after the last head has crumbled away, the Kayans will still go up river to strike at a stone or a block of wood.

We passed through the shelter where the war party had spent the night and descended again to the river, where a scene took place suggestive of an early Christian baptism. Standing knee-deep in the brown water, we were sprinkled by an old man waving a bunch of "daun isang," who repeated a prayer for health and strength, as he splashed the water at us with his wand. Then clothes and weapons were flung aside, and everyone plunged into the river to bathe before returning to the house. Laughter and horse-play broke out again—they were never far below the surface—and several people were systematically splashed. I do not know whether this bathe was ceremonial or dictated by high spirits; it seemed to be the latter. Finally, headed by the war party bearing the head in a leaf-decked basket, we entered the canoes once more and headed down the river.

The sun had risen, driving away the mists, and the boats raced down in mid-stream with a fine swinging stroke, the brown water hissing and bubbling under their bows. We sang and shouted as we dipped the paddles, and the banks sped past till the last corner was reached, and we came in sight of the house. As we rested on our paddles and drifted towards the main landing-stage, the shouting increased, and was answered by the women and children from the verandah. Volleys of gunshots added to the uproar. Our canoe swung in to the bank, and instantly Tama Tinjan sprang ashore and sacrificed a small chicken, whose bleeding body he impaled on a stick beside the entrance to the house. The head was borne in, and each man as he passed, brushed the chicken with his knee, and entered the house blood-stained. This must have been one of the supreme moments in former days, but now it passed with little

excitement ; breakfast seemed to loom more important than hypothetical triumphs in battle.

The men, on their return, are not allowed to enter their rooms, and food must be cooked and eaten on the verandah, in bamboo stems, not pots. All down the house makeshift cooking places were in action, and soon we were feasting on boiled rice and a little dried fish. As yet there were no signs of borak and merrymaking, which was a great relief to me, as there were long hours of carousing ahead. I sat beside Tama Tinjan and the elders on the raised platform below the heads, and filled in the time by making notes on the journey up river. Tama Tinjan was as aloof as ever, and the old men voluble but completely unintelligible. Presently we were joined by a Chinese called Baiong, who had married into the tribe and could speak English after a fashion. He was a smooth person whom I disliked intensely.

As the morning wore on, the crowd began to collect again around us, and preparations started for the sacrifice to the omen birds. The space beneath the heads was railed off, and the women, children and less important men shepherded away. The poles which were to bear the offerings were hoisted into the cleared space for preparation, and a party of men appeared bearing the brass gongs and a single drum. As the old men started to shave the bark from the offering poles, the gong players seated themselves, and the leader struck a single deep note from the bass gong. It was answered by the drum, taken up in the tenor, and then gradually grew to a deafening brazen clamour as the remaining gongs joined in. Out of the noise, by degrees, a harsh treble melody took shape, with a surging, pulsing, bass accompaniment. The old men plied their knives, and the chips flew from the offering poles, while the crowd swayed silently behind the barriers. The rhythm of the gongs seemed to eat into one's brain, and it was almost impossible to concentrate on the details of preparation, but I

learned later that the handling of the offering poles is almost as spiritually dangerous and unpopular a pastime as the moving of heads.

At length the poles had been stripped of their bark, decorated with curls of wood-shavings, and lashed together in the form of a ten-foot crucifix; and then, suddenly, the gongs ceased playing. In the silence that followed there was an air of tension, and it seemed that this part of the Nyau was far from losing its significance. The moment of sacrifice approached. But, in spite of the atmosphere of excitement, I had already seen just enough of Kayan ceremonies to suspect that we were in for an appalling anticlimax. It would have been a noble sight to see Tama Tinjan bury his knife in the throat of some mighty boar to the accompaniment of shouting and stamping from the assembly, but the Kayans have no dramatic instinct; where religion is concerned, their watchword is Economy. The preparations for cooking the offering alone would have been enough to excite the suspicions of any deity, for the fire was lighted on a small pile of earth contained in a hat. The gongs started again, this time in a subdued rhythm, and a man entered the enclosure bearing no full-grown hog, but a half-fledged pullet, and a diminutive pigling barely a foot long. He set them beside Tama Tinjan, and one of the old men, touching them with his hand, addressed to them a long prayer in which were enumerated all the needs of the house and the messages which the unfortunate animals were required to carry. Theirs seemed weak shoulders on which to impose so heavy a burden.

When the prayer was complete, the animals' throats were cut without ceremony, and their blood poured out over piles of wood-shavings previously prepared. The pig was then singed over the fire, and its liver removed for inspection, while everyone crowded forward. There are many points in the interpretation of a liver—the shape of the lobes, the size of the gall bladder, the state of the

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At length the poles had been stripped of their bark, decorated with curls of wood-shavings, and lashed together in the form of a ten-foot crucifix; and then, suddenly, the gongs ceased playing. In the silence that followed there was an air of tension, and it seemed that this part of the Nyau was far from losing its significance. The moment of sacrifice approached. But, in spite of the atmosphere of excitement, I had already seen just enough of Kayan ceremonies to suspect that we were in for an appalling anticlimax. It would have been a noble sight to see Tama Tinjan bury his knife in the throat of some mighty boar to the accompaniment of shouting and stamping from the assembly, but the Kayans have no dramatic instinct; where religion is concerned, their watchword is Economy. The preparations for cooking the offering alone would have been enough to excite the suspicions of any deity, for the fire was lighted on a small pile of earth contained in a hat. The gongs started again, this time in a subdued rhythm, and a man entered the enclosure bearing no full-grown hog, but a half-fledged pullet, and a diminutive pigling barely a foot long. He set them beside Tama Tinjan, and one of the old men, touching them with his hand, addressed to them a long prayer in which were enumerated all the needs of the house and the messages which the unfortunate animals were required to carry. Theirs seemed weak shoulders on which to impose so heavy a burden.

When the prayer was complete, the animals' throats were cut without ceremony, and their blood poured out over piles of wood-shavings previously prepared. The pig was then singed over the fire, and its liver removed for inspection, while everyone crowded forward. There are many points in the interpretation of a liver—the shape of the lobes, the size of the gall bladder, the state of the

various blood vessels and connective tissues—and the occasion is one of some debate. If the end of the main vein can be made to stand up straight, it is a particularly favourable omen, and on this occasion the persistent efforts of the interpreters were at last successful. On the whole, it was agreed to be a favourable liver, and one old man drew my attention to a long piece of connective tissue hanging down below the gall bladder. "That means success for the next war party," he said, adding a little regretfully, "but what is the use?" The examination of livers seemed to be a serious matter, for the discussion lasted for some time, and even Tama Tinjan lost his air of boredom. Detached from white civilisation, and living alone among the people of a strange country, it is possible to be in sympathy with them in their belief in other gods and even in the power of heads; but the interpretation of pigs' entrails is an aspect of religion likely to provoke academic interest rather than emotional sympathy in the public-school visitor, and I could not share so deeply in that part of the general excitement.

For the moment the liver was put on one side, and the men of the house filed in to the enclosure with sword, shield and helmet, to be marked with the blood of the sacrifice. Aristocrats, elder statesmen, yeomen farmers, servants and even children so small that they had to be carried, stood in turn before Tama Tinjan and the old men, received a smear of blood from the wood-shavings, and then sprang in the air with loud shouts. The gongs had ceased their subdued beating, and the whole atmosphere again grew more light-hearted, as seemed to happen whenever the ceremony changed from a communal to an individual basis. A few groups wandered away down the verandah, but many—too many—stayed to laugh and cheer at my own blooding.

The climax of the morning ceremony was now approaching, which was perhaps fortunate, as we had breakfasted a long time before. The offering poles were



Ascending to the forest
top :

1. A Liana, winding like
a corkscrew upwards.
2. Hartley.

all prepared, the cooked meat arranged in neat rows on splints driven into the cross-bar, and the corpses of the pig and chicken attached to the upright; but before it could be set up, the omens had to be consulted once more. The bamboo stem used to cook the offering was split in half, and amid an atmosphere of suppressed excitement the halves were thrown in the air. For the omens to be favourable, one of the halves must land with the curved side downward, the other on its cut edges, and as three tries are allowed, success is usually achieved. On this occasion the second attempt was successful, and was greeted by deafening yells and stamping from the entire population.

It only remained to lower the offering pole from the verandah and set it up in the clearing in front of the house. Custom demands that only the chief and one helper shall descend, and earlier in the morning I had had a brisk argument over the subject of photographs, which I was determined to get at close range. Bit, when approached on the subject, was frankly shocked, and assured me that it was quite out of the question, and in any case beyond his power to give me leave. He might grin during the ceremonies, but at least he was rigidly orthodox. Tama Paya tried to be subtle—a feat beyond the compass of his slow mentality—and vowed the event was not worth the price of a film. Several old men, acolytes who had hovered round the sacrifice, assumed grave expressions and kept up a subdued chorus of negatives in the background. Tama Tinjan, to whom I eventually appealed, was less interested by the question, and merely remarked that he did not suppose it mattered, provided that I kept at a respectful distance—an opinion which seemed to shock many of those present. The setting up of the pole proved to be devoid of incident, and if any had hoped to see the Kites swoop down to devour the offerings they were disappointed.

As we climbed the ladders into the house, the crowd

which had stood beneath the heads scattered with a babel of chatter and laughter, to prepare the midday feast or gather in little groups all along the verandah for the first drink. Before every door lay a fine full-grown hog, its fore and hind feet lashed securely to a pole, and for a space the verandah was transformed into a slaughter-house. The first measure of borak was drawn from the jars and brought to us in bottles, basins and anything that would hold liquid ; even my teapot was found to contain it. Even on this day there was no ritual of drinking, save the reiterated " Drink up, tuan. How can you enjoy yourself if you don't drink ? " By courtesy the best vintage is offered to the visitor ; by courtesy alike he drains the cup. The strength and quality of borak depends on the care with which it is prepared and on its age, but a vintage brew is largely a matter of chance, recognisable on the palate, but not in the bottle. In the early stages it is a sickly liquid of beer strength, often thick with rice grains, and possessing a sweet, musty smell calculated to make the gorge rise after the second glass. After straining it gradually matures, losing much of its sickly flavour, and increasing in strength to a point between wine and spirits. If matured in the bottle it acquires a sharper taste which is by no means unpleasant, and occasionally it may even become sparkling, though this is a rarity which I never encountered.

While servants dismembered the pigs and placed the squares of flesh in green bamboo shoots which they thrust into the heart of the fires, the nobly born sat drinking on the verandah and whiled away the time by interpreting the livers brought out for their inspection. By the time the feast was ready, the religious atmosphere was fast disintegrating ; the reading of omens yielding place to the ridicule of one's neighbour's idiosyncrasies, to backchat and to story-telling. " Tuan, have you heard the one about the Dyak and the gong ? " Yes, I had heard it often enough, but this did not prevent Bit

from telling it again, with all the inflexions of voice and dramatic gestures which had been elaborated since the tale had been introduced by my Malay bird-collector a fortnight before. The chatter and laughter became more and more deafening, and the successive waves of food and drink obliterated all sense of time and all memory of isolated incidents. We seemed to have been feasting for ever, and the mind refused to contemplate any other form of human activity.

The Kayans ate their way steadily and methodically through everything that was set before them ; not so two visiting Dyaks who, after the manner of their race, attacked the first instalment as though it were the last food they were likely to see for a week. Tackling the borak in the same manner, they passed rapidly through the hilarious and the abusive to the violent stage ; whereupon it became necessary to suppress them by force, an operation carried out with such gusto that both were extremely ill, and were removed in a state of coma. Shortly afterwards an appalling uproar in the next room proved on investigation to be due to a similar incident, this time involving a Kayan. The rhythm of the party, disturbed for a moment, was rapidly re-established after such interruptions, yet it remained on a conversational level ; as yet there was no singing and dancing. I wandered along the house, joining groups on the verandah, dropping into friends' rooms : Akum Deng, suaver than ever to-day, calling at once for another instalment of the feast, which appeared like magic, perfectly appointed ; Aban Deng, with yet another vintage bottle and an excellent consignment of Kalabit tobacco ; Lalan, presiding amid a more staid atmosphere, till finally I reached sanctuary and relative peace in Tama Paya's room which for the moment was deserted.

Towards sundown the throbbing of the gongs again echoed down the house, penetrating softly yet insistently into every room, dispelling the torpor born of

continual feasting, and drawing us forth to the verandah. In the space below the human heads the women were dancing, waving long bunches of "daun isang," passing and repassing before the dais in an endless figure of eight, never varying their movements or their solemn expressions. There were preparations afoot among the acolytes, and soon the flames of another sacrificial fire shone through the gathering darkness. The dancing ceased, and the crowd moved nearer; green bamboo stems, full of pig flesh, were thrust into the heart of the fire; the rhythm grew deeper, more insistent; the skulls looked down from their racks upon the preparations for their feast.

The little squares of cooked meat were impaled on bamboo splints and arranged neatly on dishes, beside which were set cups of borak of a poor quality; again there was no attempt to impress the deities with a lavish offering. Tama Tinjan stepped forth with one assistant to deliver the sacrifice, and then, to my great surprise, turned and asked me to help them. I have never been able to understand what prompted him to do this for he was not one of those who amused themselves by trying to turn me into a Kayan. In the light of subsequent events his behaviour became even more incomprehensible, but at the time there seemed no reason for refusing.

The fire blazed up upon the hearth, shining on a sea of brown faces, and the clamour of the gongs seemed to submerge everything in an overwhelming flood as we moved slowly down the lines of hanging human heads. Blackened teeth received the meat; the borak dripped from fleshless faces; eyeless sockets, vacant and meaningless, returned our gaze. Against the wild background of noise and firelight, the crowd was still, the movements of the offering bearers smooth and unhurried. Tama Tinjan's thin face had lost its sourness and become an expressionless mask, devoid of all trace of excitement or boredom as he moved mechanically from head to head.

In the whole assembly the gong players alone were dynamic elements, their rhythm awaking no response in watchers or priests.

We had progressed little more than half-way down the line of heads, and the even flow of the ritual was dulling even my sensations when the spell was abruptly shattered. Tama Tinjan suddenly flung aside the dish of meat and, turning on the crowd, cried out that the whole ceremony was a meaningless farce, in which he for one would have no further part. Instantly the gongs stopped beating, and a flood of excited conversation burst forth. Aban Deng and Jalong sprang forward to expostulate with him, but brushing them aside he strode through the crowd towards the door of his room. Lalan arose from the floor and started in pursuit, while the aristocrats gathered in a group around me and gave vent to their scandalised feelings. I offered to continue the sacrifice in his absence, but Tama Paya protested: "No, he must come back, or it will be a terrible calamity. We must make him come back. He is drunk, and does not know what he is doing." I did not like to say that to me Tama Tinjan's outburst had borne no traces of drunken frenzy.

Some five minutes passed in fruitless discussion. The majority of the party seemed to have unbounded confidence in Lalan's ability to control her husband, and spent their time in apologising to me for the regrettable lapse in decorum, and in explaining the terrible insult which had been offered to the heads. There could be no doubt that the aristocrats were very deeply shocked, but it was unfortunately impossible to find out the views of the rank and file, for Tama Tinjan emerged again from his room almost as abruptly as he had disappeared, with Lalan in close attendance. I never found out what arguments she used on him; they may have been physical, for he seemed coerced rather than convinced, and there was a cynical twist to his face as he took up the sacrifice at the point where he had left off.

Again the gongs raised their clamour, the conversation died down, and the ritual was completed without further interruption. Honour seemed satisfied by this lip-service of Tama Tinjan's, for no one referred to the incident again. The ashes of the sacrificial fire glowed faintly, and only the drum continued to sound as the crowd dispersed through the darkness to feast again till drink or exhaustion overcame them and they slept where they fell.

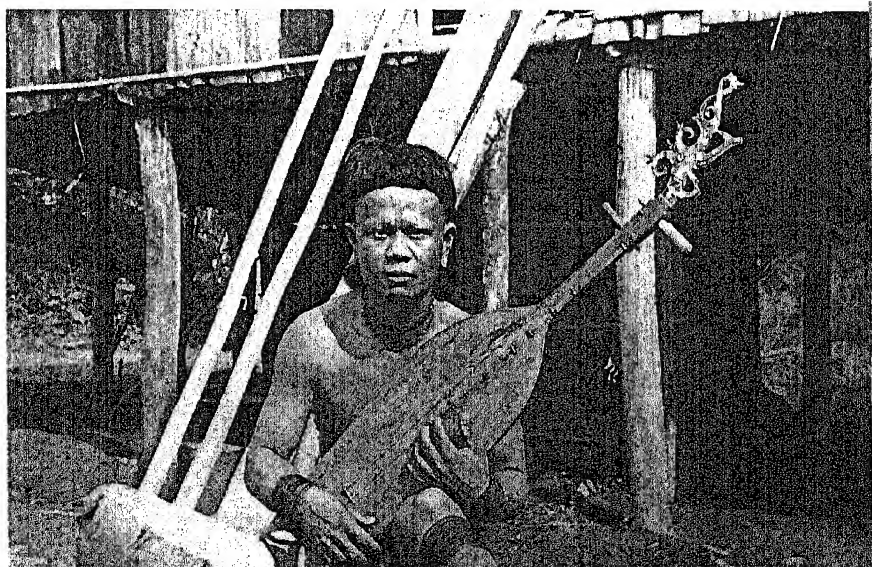
No one could have guessed from the cheerful company which now gathered in Lalan's room at the recent calamity that had threatened the house. Amid songs and flute-playing the party continued, guests and hosts applying themselves with renewed vigour to the serious business of dissipation, while girls who up to the present had been dumb, suddenly became miraculously endowed with the power to plead, in Malay, for all manner of presents. Eulogies became more fulsome, promises more fantastic, stories less coherent, till one's brain reeled with the noise and the reek of tobacco smoke. The time arrived when further action was clearly desirable, and, at a movement from Tama Tinjan, the men arose and took up their war-coats and weapons. Taking a reed-pipe (known as a *keluri*) from the wall, Tama Tinjan led us in procession out on to the verandah, calling the other warriors out from their rooms as we passed, till we were a company a hundred strong. Up and down the verandah we danced, a long line of men shaking the floor with our stamping, swinging shield and long curved sword, as we turned from side to side, drawn on through the darkness by the thin piping of the *keluri*. We threaded our way down the narrow passage to the farther house where Jalong feasted us royally and sent us stamping back up the long verandah to the room of Aban Deng. The memories of that dance fade into dreams, a dim recollection of falling asleep to the echo of the drum which still beats faintly through the darkness.

There is little to add to the story. Jalong's men, who had taken no part in the main ceremony, made a simple offering to the Kite next morning, but owned no heads before which the tribe might dance. Towards evening, pigs were killed to celebrate my Kayan name-giving, and afterwards the people crowded the verandah and even climbed among the rafters to listen to long and impassioned speeches from the elder members. The orators spoke in Kayan, but subsequently translated their remarks into Malay in great detail, buttonholing me one after the other until I was hopelessly lost in the welter of local politics explained in accents blurred by two days' festivities. Far into the night we sat talking on the verandah, till one by one the voices were stilled, and the house slept in a velvet darkness pervaded by the hum of countless insects and the strange, damp scent of the river. At dawn, while the white mists still hung over the water, I headed downstream, back to the Tinjar Valley, and thence to Marudi, my white companions and Oxford.



Using a blow pipe. The hands are both held close to the mouth.

Playing the sapch, a faintly twanging instrument like a mandolin.



BEAUTY IN BORNEO

By

PATRICK M. SYNGE

LIVING always in deep greens and teeming tropical life, the Bornean natives see the whole world, both of reality and dream, in terms of twisting, tendrilous, exuberant vitality. *Creeper and carving, tree stem and tattoo mark, orchid and art-forms*—these are inseparably related in the pattern of jungle life. To Synge, too, they are inseparable in his interest and understanding. So, here, first he takes the jungle, then the art.

T. H.

Borneo is dominated by its vegetation ; all the instincts and life of the people reflect it. To understand the life of the Borneo peoples, we must ourselves experience the great forest, the shapes of the leaves and the curves of the twisting lianas. The people practise shifting cultivation and only scratch a small part of the surface of the land, burning and clearing very roughly an area in which they plant hill rice along the banks of the rivers : after a few years the padi (rice) field is deserted, and the ground rapidly becomes covered with secondary forest even denser than the primary forest which it has replaced. Probably hundreds of years must pass before the big trees grow again and primary forest is restored ; no one knows for certain how long. This primary forest is the real old forest, distinguished by the abundance of very large trees and the relative thinness of the undergrowth ; in secondary forest there are few large trees, and the undergrowth and tangle of lianas is much denser. It is generally possible to walk through primary forest without cutting a path ; this can seldom be done in secondary growth.

One of our objects in Borneo was the investigation of the structure and species of the primary forest, of which there is little now left on the Tinjar banks. Away from the rivers, however, there is an abundance which seems unending. Looking down on the Tinjar Valley from our High Camp on the ridge of Mount Dulit it was possible to distinguish a sharp line of division between the primary and secondary forest—a line which ran roughly parallel to the river bank and from half a mile to a mile away from it. The secondary forest is bright green and looks not unlike a smooth lawn ; indeed, this resemblance is one of the chief dangers to aviation in the tropics ; I believe there are records of pilots mistaking such forest for smooth ground and attempting a landing. The primary forest is a dull dense green in colour, and the crowns of individual trees can be seen

projecting above the general level even from some distance.

So dominant is the forest that it is said to be possible for an orang-outang to travel from the south to the north of Borneo without descending from the tree-tops. His only barrier would be the big rivers and, since the majority of these run north and south, they would merely prevent his spread longitudinally east and west.

Botany and plant-collecting in the tropical forests are not quite the same as botany in England. In Borneo we started with the belief (subsequently found not to be quite true) that everything floral was unknown. Still, the plants were less known than the animals. We wanted a complete collection—everything from trees to mosses. We discovered over thirty-three new species of orchids alone and very many new species of other groups. Instead of setting out with a vasculum and a knife we started with porters, large baskets and axes. We formed quite a procession every morning, headed by Richards and myself. Then came Ngadiman, an excellent trained Malay collector, whose services had been lent us by the Director of the Singapore Botanic Gardens. He was a little man, and he always wore a most immaculate white topee. Ngadiman was followed by Lumbor, a forestry guard, lent by the Rajah ; then came two or three Kenyahs or Punans carrying baskets and axes on their backs. These people always carried loads on their backs, never on their heads like the Africans. If the forest was thick, and we strayed from the main path, they would cut a path with their parangs ; always when we left the main path they would cut and bend over small twigs so that we should be able to find our way back again. It is very easy indeed to become lost only a few yards from the path.

In camp we left Omar, a valuable old Malay, who dealt most skilfully with the Herbarium material. He would

change the papers and keep a fire going nearly all day drying the specimens ; in fact, he almost cooked some of them with excellent results.

There is something about the rain forests of Borneo that will always lure back the traveller who has once visited them ; the luxuriance, the chaos of tangled growth and the vastness of some of the trees inspire awe. A tropical forest is not dark, as is often suggested ; the sunlight does penetrate through the " canopy," and the ground-level is neither so dark nor so gloomy as in a thick pine wood in Europe.

Many imagine that these deep tropical jungles form a paradise of large and brilliant blossoms. The flowers indeed are there, but they are not found in conspicuous masses as on an English heath or in an Alpine meadow. If you want to see hillsides covered with colour, go to the Alps or the Himalayas, and not to the tropical rain forest, which is indeed a paradise, but a paradise of greens ; there is so much of this colour and so many different shades that the effect is somewhat unreal. Often I felt that our wanderings in the forest must be only a pleasant dream and that I should wake to find myself in Cambridge, slumbering over the fire.

In the forest we had to search hard, frequently with field-glasses, to discover the flowers ; it is easy to go for a long distance without seeing any at all, for they are mostly on the tops of the trees where the light reaches them ; only a few fallen corollas or petals below betray their presence.

Our path was not a smooth or flat one, just a trail cut through the forest on the mountain-side. Practically all the ground between the river and the mountain consists of ridges with narrow and sometimes knife-edged tops, up and down which we perpetually scrambled, slipping and sliding on the clay soil and clinging to the frailest supports to help us up ; indeed, sometimes I

felt quite glad when we found a tree in flower and were able to rest while it was examined. The main crest of Dulit consists of an escarpment of Lower Miocene sandstone which runs more or less parallel to the general course of the river for some twenty miles, maintaining a ridge of fairly even height. In many places, where it was very steep, the Kenyahs had prepared for us ladders made out of notched tree trunks; sometimes these ladders were almost vertical for twenty or thirty feet, and it would have been impossible for laden porters to ascend the mountain without them. The dampness natural to the mountain and the forest soon covered these trunks with a mass of minute green plants and algæ and made them extremely slippery. Since there was often no hand-rail we had to balance ourselves precariously on them. We quickly found that ordinary sand-shoes with rubber soles were much the best kind of shoes to wear, and that nailed boots slipped the worst on the ladders.

There was a small stream which wandered down from the escarpment of Dulit into the Tinjar by our camp. Our trail crossed this stream eight times. Generally it was easily fordable by stepping-stones, but after heavy rain it would become a raging torrent and form an effective barrier between the two camps. One day, for botanical purposes, we felled a large tree across one of the fords, which we thought would provide an adequate bridge. The trunk was several feet clear of the water. A few days later it was gone, and we found that it had been swept by the spate several hundred yards downstream into a quite useless position.

Along the stream we could see the size of the forest trees since it was possible to view them from a distance. Many were as much as a hundred and fifty feet in height and a hundred feet to the first branch. Near the base the trunks were often buttressed, and the buttresses would sweep out in serpentine curves from the base of the tree.

The cause of the buttressing is still largely unknown to botanists, although it is probable that they do provide some extra support for the tree.

Along the stream, also, we could see best the luxuriant growth of liana and epiphyte. I think that these are two of the factors which contribute most to the beauty of the forest. The stems of the lianas would hang like bell-ropes from the tops of the trees to enter the ground far below. Lianas are a characteristic of tropical forests. They are woody climbers with rope-like stems and masses of luxuriant foliage tumbling and smothering in the tree-top level where the light is reached. They are most useful to the wandering botanist, since up them a man can generally be persuaded to climb, exactly as up a rope, to gather specimens from the tree-tops. In England the nearest approach to these lianas is the Traveller's Joy, *Clematis vitalba*, but it displays little of the rope-like stem and the great masses of luxuriant growth found in tropical lianas.

Many of these ropes assumed weird forms. We saw one which resembled closely a corkscrew eighty to ninety feet long, winding in a spiral up to the forest top. It was probably a species of *Bauhinia*, a leguminous liana common in the tropics. Another such climber had a flattened stem twisting in graceful curves and loops, but always repeating the same series of forms and sequence of curves, even as some ornate wallpaper returns to the same form again and again.

The rattans or climbing palms caused us much trouble. The commonest was *Calamus*, a climbing palm with beautiful feathery fronds, but in which the leaflets at the ends of the fronds and the stems bear stout hooks ; these would frequently catch in our clothes, our hair or our flesh. The stem of this palm often attains a length of several hundred feet, and when stripped is largely used by the people as rattan for fastening round joints in their houses and making baskets, etc. Although

slender, it is very strong. It is the rope of Borneo as banana fibre is the rope of East Africa.

The high temperature and the high humidity of the tropical forests encourage growth of all kinds; but to obtain light it is necessary for a plant to grow up quickly to the top of the forest as a young tree does, or else to grow on some support such as the branch or the trunk of the tree. These are the epiphytes—orchids, aroids, ferns, mosses and many other groups. They are not parasitic on the trees, but are merely supported by them. Round their roots they collect leaf-mould, and from the damp air they draw in moisture. This is especially true of many of the epiphytic orchids whose roots are surrounded by a layer of spongy tissue called the velamen, which acts like a sponge.

Epiphytic on the leaves of many plants, including other epiphytes, there would often be small masses of liverworts; merely a green form to the naked eye, but when looked at under a lens a delicate and beautiful structure of slender branches and green plant body. These epiphyllous liverworts seemed to me to represent the acme of epiphytism, the last word in sponging on your neighbour.

We had been asked especially to look out for and to collect as many of the flowers of the trees as possible. Often the flowers of the trees are the last flowers to be collected in the tropical forest, since they are not often visible from below and are difficult to obtain. Whenever a few flowers were found on the ground, we would settle down to a "tree conference." This became an established part of our routine and would last from five to twenty minutes. It provided for me an unfailing source of amusement. It was no easy matter to decide from which tree the flowers came.

Everyone would peer upwards into the "canopy"; field-glasses would be passed from hand to hand until the canopy had been inspected from every angle except

the one vital one—namely, from above. Ngadiman and Lumbor would go round, blazing all the trees, examining the latex, smelling the bark and sap. At last one of them would come to a decision; nearly always they were correct. We ourselves could seldom see any flowers above.

If it was possible for a man to climb the tree or by a neighbouring liana to reach the flowers, this was done. We had one man who was a champion climber. I am sure that he would have put many of Britain's best gymnasts to shame. But if the flowers could be obtained in no other way, we would cut down the tree. Axes would be pieced together; the head was generally carried separate to the shaft; the men would start work and down the tree would come, often in an amazingly short time, as the axes were very small and the wood of many of the trees very hard. The wood of bilian, one of Borneo's finest timbers, is so heavy and close-grained that it will not float in water. Always the fall of a big tree fascinates me. In these Bornean forests it was magnificent, since the tree-tops were so thick that one tree could not fall without disturbing others; for several moments after the main crash, little pieces would continue to fall, while the sound echoed round and round from tree trunk to tree trunk; following on by contrast came a deeper silence than that to which we were accustomed, until gradually the smaller noises of the forest began to assert themselves again. One forest giant would generally bring down several smaller trees and lianas in its wake, and we felt disappointed if we could not collect considerably more than the flowers of the actual tree for specimens.

Systematic science demands many sacrifices in the way of fine trees, flowers, birds and animals, beautiful butterflies and strange insects, but in the case of the tree, the fall of one giant provides light and space for seedlings to grow up and his place is filled again.

While Richards measured the trunk of the tree for diameter and height, and took out a longitudinal section for a timber specimen, I would scramble about among the débris and collect epiphytes, particularly orchids, of which we obtained some interesting species in this way. The epiphytic flora of a great forest tree is enormous. I have often thought that it would repay an ecological study. Along one branch alone there may be hundreds of plants, and with them are collected humus and mosses and insects dependent on the plants. A single tree-top is like a small world of its own.

There are, however, a few trees in the tropical forest which do not produce their flowers at the top branches, but out of the old wood of their trunks often only a few feet from the ground. Such trees are peculiar to the tropical forests. I don't think that any occur in England or in temperate countries.

The almost invariable association of the larger epiphytes with ants caused me much discomfort, and it seemed that the smaller the ant the more painful was the bite. Luckily the effect only lasted for a short time, but frequently I had to suspend my collecting while we brushed and picked the ants off. There are several epiphytes which produce specialised internal cavities in which the ants live, such as *Myrmecodia*, a plant in which the base is formed into a large tuber, honeycombed with passages inhabited by ants. There is also a *Polypodium* fern which has a great flattened base hollowed into chambers. It has been suggested that the ants protect the plant from other insects, but it seems more likely that their main importance to the plant lies in the humus which they collect. There are also species of *Macaranga*, plants belonging to the spurge family, which contain hollow cavities for the ants in the flower-stalks. There is a small hole by which they can enter and leave the cavity. The exact relation between the plant and the ant is not known.

We were particularly keen to find orchids which might prove of some horticultural value, and indeed several that we found were of considerable interest for their bizarre form and delicate colouring. I found them more interesting by far and sometimes more beautiful than the gigantic and showy hybrids produced in such numbers to-day. For pure show, however, few of the Bornean species could compare with the products of modern orchid hybridisers. The orchid flora is very rich, and undoubtedly many species yet remain to be recorded. Richards, who had also visited British Guiana, reported that the flora of that region seemed even richer in orchids of horticultural value than the flora of Borneo; this would easily be confirmed from an inspection of any orchid exhibit at a flower show, since all the *Odontoglossums* and the *Cattleyas* are American in origin.

The prevalence of epiphytes, particularly orchids, seems to be closely related to the roughness of the bark. In the case of a very smooth bark little humus or moisture collects on the branch and few epiphytes are found, while in the case of trees with rougher bark the higher branches are often covered entirely with epiphytes which take advantage of the humus and moisture collected by the rough bark.

Scent is a frequent characteristic of the Bornean orchids. There was one small *Coelogyne* with white and yellow flowers common in the moss forest. It had a very sweet smell. I could always tell when a plant was near by this means, and would then search until I found it. There is another Bornean orchid, *Bulbophyllum Beccari*, which is reputed to have a smell far stronger and far more unpleasant than that of any durian, which can be smelt fifty yards off. The flowers are reddish-brown and are, I imagine, fly-pollinated. Nearly all plants which are pollinated by flies smell like bad meat. We have only to think of *Aristolochia* or *Stapelia* to confirm this. The leaves, also, are magnificent. It is



Pitcher plants. Insect
catchers of graceful
form and designed
with diabolical
cunning.



A fantastic fungus,
Dictyophora, like a

probable that they are the largest of any orchid leaves, being entire and over eighteen inches in length by twelve inches in width. The stem is almost wooden and ascends the tree trunk, clinging with small roots like ivy, while the vast leaves grow out as brackets, collecting a mass of leaf-mould at their base.

In extreme contrast to this plant are the minute flattened stems of *Taeniophyllum*, which we frequently found on the highest branches of the trees. Here there are no leaves, and the stems resemble slender green tapes creeping over the branches. The flowers also are minute.

On a tree trunk a little distance from the trail, I found one of the finest orchids we saw in Borneo. The flowers were large, about two inches across, and borne singly one on a stem. They were pale buff brown in colour, with orange flecks and lines. The lip of the orchid was poised and curved forward, so that it moved in the wind; the lateral petals were like two superb orange-brown moustaches, emerging above a high, stiff collar. There was a large mass of this plant. We took half, and I still remember Ngadiman walking down the mountain with it, supported like a wreath round his neck. Subsequently this orchid flowered in England in Sir Jeremiah Colman's famous collection and received an Award of Merit at the Chelsea Flower Show in 1938 under the name of *Bulbophyllum Lobbii* var *Gatton Park*. It was unfortunate that the name suggested rather a hybrid raised at Gatton Park than a species collected on Mount Dulit in Borneo. I do think that such varietal names should not be given to species collected in the wild, but that all names should as far as possible be either descriptive of the plant or be derived from the place whence it came.

As well as these fine orchids, we found a number of species of *Cirrhopetalum*, with deep crimson, reddish-brown and orange flowers, small hooded flowers, from

the base of which extended a long strap-shaped labellum. These flowers were grouped together at the end of a long stem, so that they often formed a semicircle of colour a couple of inches across, delicately poised and swaying in the wind.

Grammatophyllum, the largest orchid in the world, grows in Borneo. We found a clump on the edge of a tree by the rice field clearing. At first I thought it was a kind of palm, so vast were its long filamentous leaves, borne on a thick stem often six or eight feet in length. Unfortunately we did not see it in flower here, but I subsequently saw it in flower in the Botanic Gardens at Buitenzorg in Java, perched in a tree of the great *Canarium* avenue. The flowers are orange and brown, several inches across, and borne on great six-foot spikes, while the leaves must have been an equal length. Occasionally plants are seen in England, but I have heard that it very seldom flowers. Another of the astounding orchids of Borneo is *Arachnanthe* (*Vanda*) *Lowii*, whose flowers are borne on long garlands often thirty feet in length. The flowers are crimson and brown and about two inches in diameter, but the two basal flowers of each spike are absolutely different from the others, both in colour and shape. They are bright yellow and have small crimson spots. This wonderful plant is named after Sir Hugh Low, an early resident magistrate who made large collections.

All these orchids of the forest require to be grown in a stove-house in England, but the orchids of the moss forest into which we suddenly entered at four thousand feet may well be grown cooler.

Although many of the orchids are epiphytic on branches or trunks of other trees, they are not parasitic. We found many interesting parasites, however. Once our collector found buds of the giant parasite *Rafflesia*, the largest flower in the world, but unfortunately he cut them together with the root of the liana on which

they were growing. Severed from their host, they did not open, and we never found any more.

Perhaps the most brilliant floral sight in the forest was presented by the flowers of a member of the *Loranthaceae*, a parasite allied to the English mistletoe. The flowers had a brilliant red and orange tubular perianth and covered the whole crown of a great tree with colour.

Some of the most interesting trees of the mixed forest were the "strangling" figs, the seed of which is carried by birds and germinates in a fork among the top branches of some tall tree where the fig grows epiphytically. Long roots are produced which often clasp the trunk of the "host" tree and kill it in much the same way as ivy kills trees in England. They reach the ground and enter the soil as normal roots; thus by the time the "host" tree is dead, the fig is independent. A bizarre and fantastic appearance is frequently presented by these roots, which are twisted and gnarled, while a forest of aerial roots (which grow straight for one hundred feet from tree-top to ground) is produced when the tree gets older.

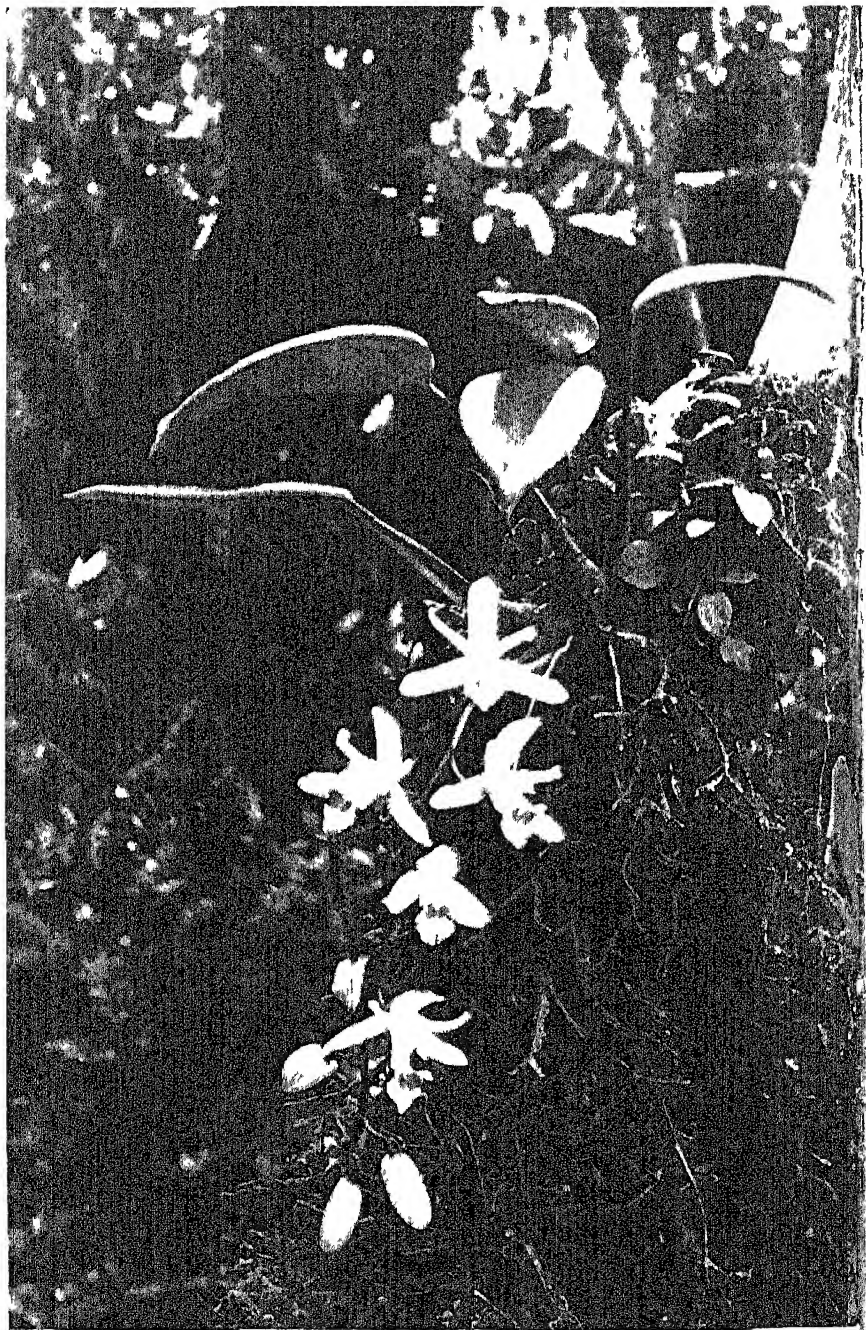
Perhaps, more than any other plant, palms are associated with the tropics, and Borneo was full of beautiful palms. As we came up river in the brackish estuaries, the banks were lined with the Nipah palms, wonderful great fronds, thirty feet of glorious feather, springing directly out of the mud, waving in the breeze, glowing orange in the evening light. Then in the forest there were the rattans, aggressive climbing palms; occasionally we saw one of the beautiful sago palms, dignified trees with a twenty-foot trunk surmounted by great waving plumes. The sago of the pudding comes from the pith. In the actual undergrowth of the forest we would find the *Licuala* palms, plants with no central trunk and large fan-shaped leaves. These were used often for roofing. Our High Camp, as the photograph

shows, was roofed with them. It did leak in heavy rain, although not so badly as the photograph might suggest.

Ferns were also abundant in the forest, ranging from the great clumps of *Angiopteris*, akin only to the primitive monster, to the filmy fern, so ethereal that its fronds were transparent, being often, I believe, only one cell thick. The birds' nest fern generally perched precariously, attached to the side of tree trunks, the fronds surrounding a perfect nest.

Among the fungi we found many closely resembling English species. One of my most exciting finds, however, was a species of *Dictyophora*, fantastic and exotic in its appearance. The base resembled a delicate hair-net, pale pink in colour, suspended from a central fleshy stalk which ended in a porous yellow "head" apparently secreting some nectar, since even large insects were continually attracted to it. Ten inches in height, this fungus was a magnificent sight, almost a surrealist object, growing out of an old prostrate tree trunk.

Above 3600 feet we suddenly entered a different world. It was the moss forest, a weird, a fantastic zone, where everything was covered deep in green cushions and tussocks of moss sponges of green, moist, squashy, frightening but beautiful. The transition from the "mixed" jungle type of forest to the "moss" forest is quite abrupt and presents one of the problems which the results of the expedition have not so far explained. At the bottom of the ladder up a small cliff was ordinary forest, at the top was moss forest. Drifting cloud is probably a factor in the formation of the moss forest, but no certain correlation can be made of the sudden change between the two types of forest and the cloud-level. It also seemed to us to become suddenly cold as we entered the moss forest. Dr. Hose indeed compared the weather in the Dulit moss forest to a



Orchid in the moss forest.

bleak November morning in England. The effect was accentuated by the contrast with the heat below, and we were all glad to wear sweaters and often tweed coats as well.

The "moss" forest consists of small trees, very few of which are more than forty feet high: they present a fantastic appearance, being gnarled and bent and covered in the lower parts with a dense growth of mosses and liverworts, hanging in thick mats and long festoons from the trunks and the undergrowth; although the forest is called "moss," liverworts actually predominate. This growth is generally a foot in depth, and in some places is as much as ten feet, giving the appearance of green grottos or fairy caves, forming arches and wreaths from branch to branch, while green pillars and stalactites join floor to roof. Pitcher plants, orchids and rhododendrons grow here in profusion. Many are new to science, and they give more colour to the moss forest than there is in the forests of lower levels, where the chief source of colour was the mauve and purples of the young leaves, drooping delicately and bashfully from their stems.

There is a curious contrast between the luxuriance of the moss with its general dampness and the leaves of the trees, the majority of which are small and often ericoid (heather-like) or thick and leathery in form. It would appear difficult to correlate such apparently sclerophyllous features—features of plants growing in very dry or very acid environment—with the prevailing humidity, although it seems that the reason must rest in factors of soil and light and acidity. But this last factor is more a result of the moss than the cause of it. In general, more light penetrates into the "moss" forest than into the "mixed" jungle forest. There are great contrasts in this respect which add to the mystery. The sclerophyllous and ericoid type of leaf is particularly conspicuous on the tops of the peaks where the exposure to sunlight is greater and the growth is dwarfed, while

the plants are slightly different from those of the general moss forest.

In the early morning the dewdrops sparkle on the feathery mosses, and the filmy ferns are almost ethereal in their delicacy ; then it does not require much imagination to conjure up little winged figures peeping out of the grottos made by the moss. There were mosses growing here on the ground which might have been miniature Christmas trees, hung with fairy bangles when the dew flashed with light on them. The pitchers would have provided drinking-cups, nestling in the moss or swaying in the wind.

It was indeed an enchanting place, although there always seemed something mysterious and uncanny lurking among the fantastic shapes of the trees and moss, and it does not seem strange that many of the Borneo peoples regard the mountain-tops as the home of the spirits of the dead.

In the " moss " forest flora, Australian types, such as *Casuarina* *Dacrydium* and *Leptospermum* predominate, while in the lower forest, Malayan types are easily dominant. It is pleasant to speculate that the " island " mountain summits of Borneo are relicts from the day when there was a land-bridge between Asia and Australia—lands which survived the inundation of the lower lands which now surround them. I fear, however, that such a statement can be little more than a speculation. There is Wallace's line of deep water just east of the island, while there is no such line separating Borneo from Malaya. This moss forest differs completely from the lower rain forest both in structure and in the actual plants ; indeed, out of the several thousand numbers of plants which we collected, so far only fourteen species have been found common to both the lower rain forest and the moss forest.

Nestling against the tussocks of moss were the pitchers of *Nepenthes*—*Nepenthe*, the old goddess of sleep and

oblivion—and certainly it is oblivion for the many insects which find their way into the pitchers and are drowned there and slowly digested—for the *Nepenthes* are insectivorous plants. But they are more—they are beautiful plants; their pitchers are streaked and painted with a theatrical brilliance, their form designed by a Cellini endowed with a Machiavellian and wholly diabolical cunning.

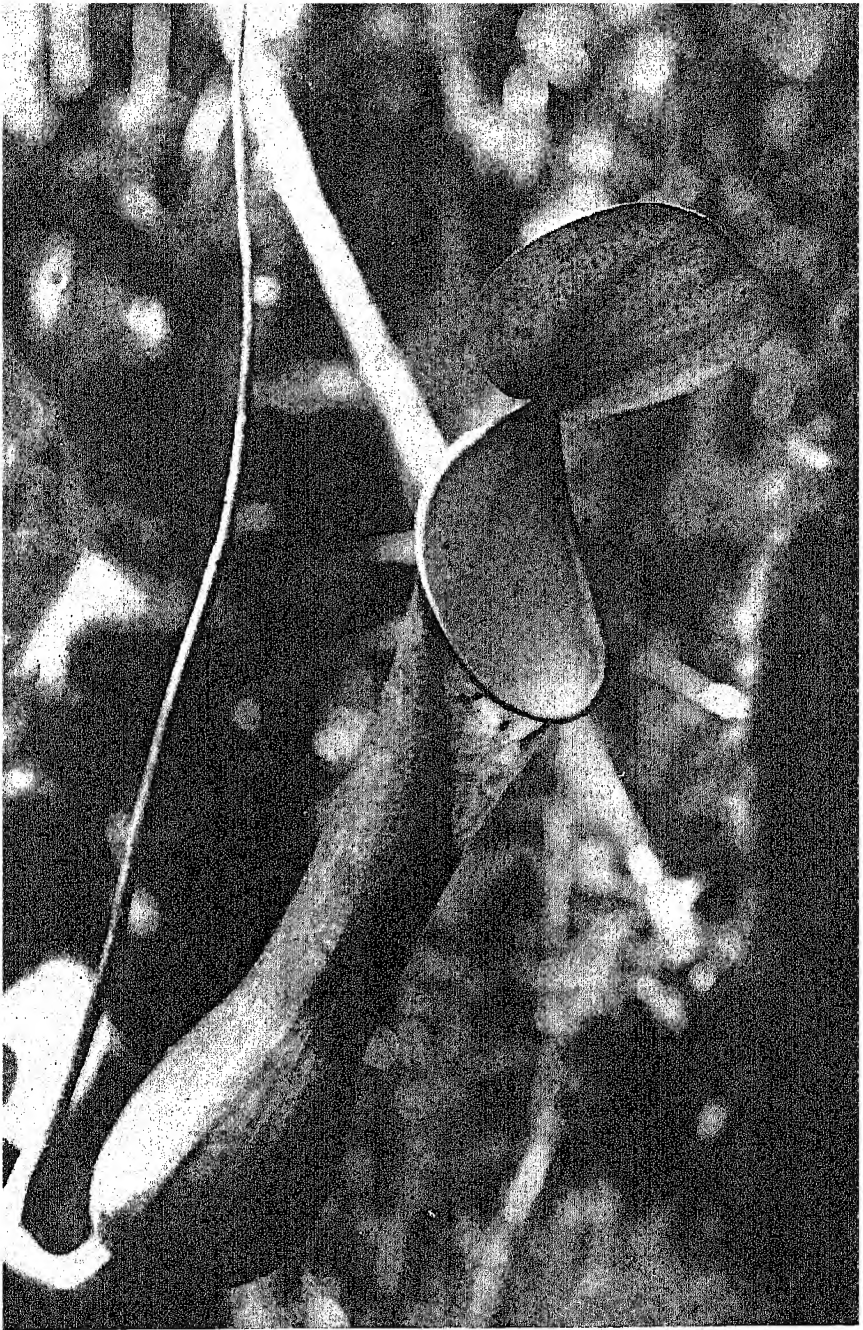
As we emerged into the moss forest we came upon a pool into which a little waterfall continuously poured, throwing out endless ripples to the green edges. Near here we found our first moss forest pitcher—*Nepenthes tentaculata*. It was one of the smallest, but one of the most beautiful. The pitchers are borne at the ends of the leaves dangling on a curved stem, which is a prolongation of the mid-rib of the leaf. It is hard to describe their form; they are like some very elaborate and exotic pipe, coloured on the outside green and streaked with crimson. They are variable in colour. Often they have a bluish-purple tinge. The inside of the pitcher is pale blue. Often six inches in length and two inches in diameter, they hold a considerable amount of liquid. The angles and the lid are feathered with deep crimson hues. Always these plants grew in shade and seemed to like a lower light intensity than the other species we found, which clambered up to the light.

In Borneo there is no doubt about their insectivorous habits, but it is doubtful whether the insect food is so necessary to them. In English greenhouses they seem to grow quite well without any insect food. Perhaps we may regard the decayed insect food as a savoury titbit, supplying extra nitrates and other salts, to use an anthropomorphic simile. In nearly all species the rim of the pitcher is smooth and extremely slippery so that any insect, attracted by the bright colour or by the honey secreted by the glands around the rim, would be inclined to fall down into the fluid below. Some of the larger

pitchers contain more than a pint of fluid. One-way traffic only is ensured as the rim of the pitcher is generally formed after the manner of one of those unspillable ink-pots and has stiff hairs projecting downwards from the edge. There is also a lid which does not close but against which any insect which attempted to fly out would be likely to collide.

The inside of the pitcher is covered with small glands which secrete a fluid, allied to the proteolytic enzymes of our own insides and possessing digestive properties. The fluid inside the pitcher is distinctly acid, and it is probable that the digestive functions of the enzyme can only work in an acid medium. Even a young, unopened pitcher contains some acid fluid. In a large pitcher the greater part of the fluid is probably due to water which has condensed inside the pitcher or entered as rain. Inside the pitcher are remains of many kinds of small insects in varying stages of decomposition, mostly small flies, beetles and moths. Occasionally, parts of large insects are found inside the pitchers. But, an amazing fact, the pitchers also contain a considerable fauna of living aquatic insect larvæ, particularly mosquito larvæ. It seems probable that the digestive enzyme can only act on dead matter, and even then its digestive powers are weak, as it is considerably diluted with rain-water. It has also been suggested, and there is some experimental evidence to support the suggestion, that these mosquito and fly larvæ contain an anti-protease substance which would inhibit their digestion by the proteolytic enzyme of the pitchers.

As we cut our way through the moss forest we found other remarkable species of pitcher plants, *Nepenthes Rheinwardtiana*, *Nepenthes Veitchii* and *Nepenthes stenophylla*. I think that *N. Reinwardtiana* was the most graceful and beautiful of all that we met. The slender stems scramble up through the moss and small trees to reach the light. Often they are thirty feet long, and at



Nepenthes Rheinwardtiana, the most beautiful pitcher plant we met in Borneo. The pitchers are crimson and inside are two emerald spots which gleam

the top only are found the large crimson pitchers dangling free in the air, ten or twelve to a plant. As the leaves die off, so do the pitchers, and more grow above on the young leaves. In shape they resemble narrow flasks and are often as much as fourteen inches in length. They are not streaked and blotchy as other species, but a uniform rich deep crimson in colour. Inside the pitcher is a pale green in colour, while just below the cup are two brilliant emerald spots which gleam as eyes.

The pitchers of *Nepenthes Veitchii* are large, and resemble both in shape and colour the popular hybrid often seen in cultivation, and named after Sir W. Thistle-ton Dyer. It is a magnificent plant, a flamboyant beauty. The pitchers are covered thickly with a down of pale pink hairs, while the lip of the mouth is prolonged upwards into a fan-like structure of extreme slipperiness coloured with brilliant diagonal stripes of green and scarlet. They are borne on rigid stems which adpress them closely to the tree trunk. The stiff leaves also clasp closely round the trunk.

Nepenthes stenophylla was distinctive of the slightly more exposed and drier situations on the very top of the various summits of the Dulit range. The pitchers are large, graceful in shape and brightly coloured, streaked with raw-meatlike crimson and scarlet. At the apex of the pitcher where it joins, the mid-rib is always a little spiral twist, somehow comic and delightful.

In the moss forest we also found many beautiful orchids. The most common was a *Coelogyne* which proved to be a new species. It had white and yellow scented flowers in a long pendant raceme which hung down on the moss like a necklace. It was so common in some parts that we could often smell the flowers before we actually rounded the corner and found the plants. We also found a fine *Dendrobium* with large white and yellow flowers and a most curious terrestrial orchid, *Corybas Johannis Winkleri*, with a small deep crimson

and white cup-shaped flower from which protruded a crimson lip shaped like a ledge, while from the rim of the cup extended three long filaments like whiskers. This grew out of the base of a single heart-shaped and beautifully-veined leaf.

My first day in the moss forest I got a great surprise. Looking up at the fork of a big tree I saw a brilliant orange flower. I sent Arwang to fetch it, and he came down with one of the most brilliant epiphytic rhododendrons that I have ever seen. Later, we found another kind with fine shell-pink flowers and yet another with scarlet flowers. They all grew as epiphytes and were rhododendrons of the type we sometimes see in hot-houses labelled Javanese hybrids. But they were as fine as any of their type I have seen in cultivation. We collected some seeds, but unfortunately they did not germinate in England. On the mountains of New Guinea there are also fine rhododendrons perhaps even finer than these, and from there it is conceivable that some might be hardy in English gardens. Some might even be tolerant of lime, since many of the New Guinea mountains are made of limestone with innumerable knife-edged ridges.

From the moss forest we passed over the ridge of Dulit down into the forest by the stream of the Koyan. This was quite different in appearance to that we had found in the Tinjar, and we found many new plants.

The most unusual feature of this forest is the soil, which is almost pure sand, and undoubtedly this is the limiting factor in controlling and forming this type of forest. A curious feature about this type of forest was the absence of buttressed trees, although with such a light soil there would appear to be a greater need for them than in the mixed type of forest where the soil is a heavy clay or loam. The ground-level here gets more light, and there is a much more dense undergrowth. There was a definite tendency towards species dominance,

and *Agathis alba* the dammar produced thirty-five per cent. of the trees over sixteen inches in diameter. This tree, a broad-leaved conifer, sometimes reaches a considerable size; it produces a valuable resin which is collected by the people and exported for use as a colourless varnish.

Richards told me that he had found a somewhat similar type on sandy soils in British Guiana. The species and genera of the plants were different, but the general appearance was similar. In the same way there was a certain similarity in appearance, although not in species, between the moss forest which I saw here in Borneo at four thousand feet on Mount Dulit and that which I saw later at ten thousand feet on Ruwenzori—the Mountains of the Moon—in Central Africa. There also was the abrupt change of vegetation as we passed from one zone to another on the mountain.

In this Koyan sand forest we found more pitcher plants, and they were in many cases the same species as we saw in the sand forest by Marudi and in the scrub sandy country inland from Miri.

Nepenthes bicalcarata was perhaps the largest and the most magnificent of all the pitchers we met; in size it is only rivalled by *N. Rajah* and *N. Lowii*, the largest pitchers known. They are found on Mount Kinabalu in North Borneo. The pitchers are nearly globular and often were as much as six inches in diameter across the mouth. They vary in colour from a pale green to a deep crimson. It is a vigorous species, and several plants were found fifteen feet in height. The most exciting part of the pitcher is two stout spines which project downward from the lid and are very prominent. There is a story that one eminent botanist, desirous of hoodwinking the public, affixed a dead rat to these spines and proclaimed the plant as a mammal-catcher. Normally, however, insects form its only prey, while it is fairly certain that the plant can grow quite successfully,

without any insect food, living as other plants do. Here also were the red-streaked *N. rafflesiana* and the paler green *N. leptochila*. In the swamp part of the Marudi forest we also saw *N. ampullaria*, a species which has clusters of small pitchers in groups one above another round a stout stem ascending to the forest top. These pitchers had no lid, but a small straplike handle sticking out from the side. They would have made splendid cups. These plants were growing in a swamp forest where the trees formed acrid roots sticking up from the ground and covered with warty encrustations.

Seeds of some of the species of pitcher plants collected in Borneo have been germinated successfully in England, but their growth is very slow. The atmosphere must be uniformly damp, but different species seem to like different amounts of light. From the extreme localisation of their distribution in the field it would seem that *Nepenthes* are very closely related to their environment and that any successful grower must follow these conditions as far as possible. I doubt also whether the species from the sand forest habitat and from the moss forest should even be grown together in the same house. At the Singapore Botanic Gardens I was told that they could not grow mountain species of *Nepenthes* successfully, but had to send them to the garden on Penang Hill.

In describing tropical rain forest, the terms "stratification" and "canopy" are frequently used, not only by botanists, but also by novelists and the more sensational travel writers; in their application to the "mixed" forest of Borneo, it seems that they are somewhat misplaced and indeed incorrect. Stratification suggests a definite break between the layers, a discontinuity, while in the "mixed" forests there was no definite break at any level nor was there any sudden change in the gradient of temperature or humidity from the tree-tops to the ground. The undergrowth and the trees tend to arrange themselves in somewhat vague layers, but there is a



Nepenthes ampullaria, a plant with clusters of pitchers like cups with handles, surrounding a stem climbing to the forest top.

gradual and not a sudden change from one layer to the other, since much of the lower layers is composed of young plants of the species which, when mature, occupy the higher layers. The only layer which could possibly be called a "stratum" is represented by the crowns of the tallest trees about a hundred and ten feet in height, the base of which was often separated from the tops of the crowns in the lower layer by a gap of a few feet. These crowns were not in contact laterally and so did not present a continuous "stratum" or a "canopy" which suggests a closed and a flat covering. Nevertheless it was easy for an orang-outang to jump from one to the other. Numerous flecks of sunlight penetrated through to the forest floor, while the undergrowth was very uneven, doubtless due to this reason. The crowns of the second layer of trees, which average about sixty feet in height, are frequently in contact with their neighbours and intertangled with lianas, and this layer has the best claim to be called a "canopy," but it is neither completely closed nor is it confined to any definite level, but grades imperceptibly into the layer of small trees below, while the undergrowth layer is continuous with this. This idea of structure was gained by clear felling and measuring the trees on sample strips of forest. The ornithologists also report that there was no sort of distinct stratification of bird life in the forest.

The botanical procession normally started out about eight o'clock and walked and worked till lunch-time. We would eat lunch seated on some old log or on the ground. Lumbor would often manage to cook a hot meal, lighting a fire with amazing dexterity, although all around the wood appeared to be damp.

One of the men would prepare for us a small cup constructed out of palm leaf and made into the shape of a box. As a drinking-vessel it proved excellent. We would return to camp generally about four, and then would come the serious work of laying out and

writing up notes on our specimens. On to each a number had to be tied corresponding to the number in the notebook, in which was entered details about habitat, growth, abundance, colour of flower, etc.

In the stream by our camp there was a most charming bathing-pool where we would often swim of an afternoon or evening, apparently quite secure from crocodiles. I also used the stream, but a little lower down, for developing photographs, finding the water cooler and cleaner than the water of the main river. Photography was an important part of our job. There I spent many evenings before dusk sitting on a rock by the side of the torrent and meditating, while at intervals shaking the developing tank.

Returning alone to the camp I would generally be rewarded with the sight of more animal life than when I moved with a party. Great hornbills could sometimes be seen flapping about in the tree-tops, while a small squirrel would peer out of the undergrowth at me, or a vast squirrel, with a bush like a fox, would hurry across the path. I would also be cheered by a series of fairy-lights, dancing at different levels in the forest. These were the entomologists' light traps, which were suspended from several large trees in the neighbourhood of the camp. They hung in chains, each trap at a different height, and it was hoped in this way to gain some idea of the zonation of insects from the ground to the tree-tops.

Many gifts of plants and insects were brought to us by the Borneo peoples, and the majority of these, particularly the insects, were striking and bizarre; it will be a long time before I forget Hobby's noble exclamation of "OH, JOY," when a moribund and damaged specimen of the commonest insect was brought to him in the middle of lunch and required immediate attention. The man was invariably gratified by such acclamation of his gift and would then bring another next day, generally at the same time. I fear the botanists could

not rise to such hilarious gratitude ; yet we tried to show our appreciation, frequently with the gift of small quantities of coarse tobacco. A few good plants were obtained in this way, but they were generally accompanied by insufficient data as to habit of growth and location.

Once, expecting a flower, I was presented with a small water-snake in a paper bag. The situation was, however, my fault since I had failed to understand the name given to the contents of the bag, which had been introduced as " ular bungah." " Bungah " I knew to mean " flower " and so expressed a desire for the gift, unfortunately failing to comprehend the " ular " or snake part. However, when the bag was opened, I managed to move hurriedly to another part of the boat, and the snake jumped overboard, where it swam about quite happily amid general laughter. I was not really sorry to see it go, since I had no material for preserving snakes on that trip.

Through all my forest wanderings flitted the most beautiful butterflies that I have ever seen, and *Ornithoptera Brookeana* was the finest of them all. Moving through the tree-tops and over the edges of the cliff they seemed more like small birds than butterflies, as indeed the Latin name implies. Their wings are covered with peacock blue-green scales, which shimmer and gleam in the sun. This insect seemed like a flower that had taken to the air, a symbol of the many beautiful things of Borneo, the native bird-winged butterfly of the white Rajah Brooke.

II

BEAUTY IN THE TRIBE

The Kenyah, the Kayan and especially the Punan, live their lives surrounded by this extraordinarily beautiful and dominating forest. How, then, does

the forest, the twisting tendril, the feathery palm, the serpentine liana, the bizarre orchid or pitcher, the mighty buttressed tree affect their arts? It is often thought to be one of man's natural instincts to represent what he sees around him. We may speculate but it is unlikely that we shall ever know for certain, whether the first art arose from conscious efforts of some primitive man to represent a familiar object or animal, to convey it as a pictogram, or whether his aimless curves chanced to show a resemblance to some object or animal, which resemblance he seized upon and set about to increase. Do we, then, owe the origin of art to the conscious efforts of primitive man, or the subconscious of every man's efforts to transform the universe, or the Goddess of Chance, acted on by the law of probabilities?

Otto Rank, the famous psycho-analyst writes :

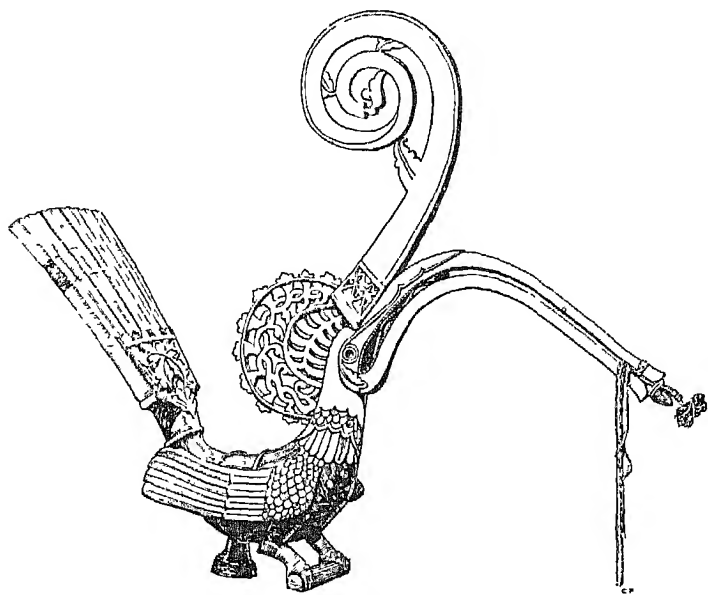
“ We have thus recognised ‘ symbol formation ’ as the essentially *human* primal phenomenon which enables human beings to become different from animals.”

Actually it is not easy to trace any directly representational element in the greater part of the arts of the Kenyahs, Kayans and Punans. Their work chiefly consisted of elaborate decorative patterns of a highly specialised and often traditional kind. These patterns were nearly always asymmetrical, and it seemed as if their artists, like the modern European Paul Klee, had not only gone for a walk with a line, but also had taken a hop, a skip and a jump as well with it.

There are, however, a few carvings such as the monkeys at Long Miri, which are directly representational and utilise fully all three dimensions; whereas the patterns that form most of their work, although sometimes carved in very low relief, really only employ two dimensions. There are also occasional direct carved representations of birds, especially hornbills, and Harris-

son was given such a one as a ceremonial gift by the chief of a neighbouring Long House when he went on his solo trip up the Belaga River; in exchange, Harrison gave Moore's gramophone!

I never saw any obvious and direct representations of any plant life. Still, there are very few European artists who have even attempted to depict the tropical



A Carved Hornbill used for ceremonial occasions.

forest. Henri Rousseau drew highly stylised forests with monkeys peeping between symmetrical palm fronds, but he never went there. Then Gauguin painted in Tahiti, and started a fashion for paintings of Tahitian peoples and the tropical seas, but even he did less really inside the forests. It is probably true that few European artists have had the resources to visit the tropics, but from those who have, it is surprising how few pictures we have of the tropical forests and the life in them. It seems to me possible that there is too great a luxuriance,

too dominating and complex a power, for artists to be able to represent it in paint. Photographic representations by the camera are seldom satisfactory. Perhaps the high mountains are the same. I know of no satisfactory pictures of them.

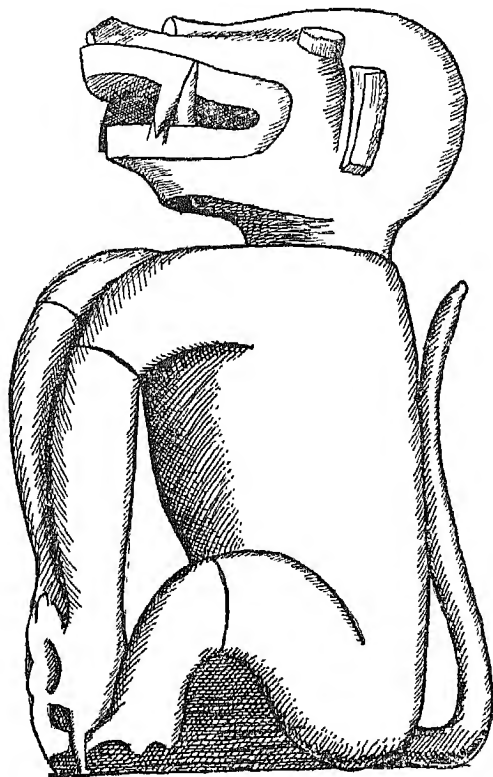
Then if European artists have found it impossible as subject—and indeed practically all the greatest artists seem to have found their finest pictures in simple subjects—can we express surprise that the Bornean artists have not attempted any representation of the forest, even though they live surrounded by it?

It is sometimes supposed that the native or savage, both odious words, and the latter a singular misnomer for the kindly and cultured peoples of Sarawak, has ample leisure, and consequently much more time to spare for the arts than civilised men. This is not so. The process of getting a living takes as long in Borneo as in London; talk, drink and smoke occupy as much of the day as they do at home. The day is shorter than an English summer day. It often is dark soon after six. The folk appear to the European to be lazy and to spend much time doing nothing but sitting and staring. It is true that the Bornean does not divide his day into definite periods of time as we do, and therefore he appears much more leisured; yet he works as much as, probably more than, the majority of white men in the tropics. That he is not a slave to artificial divisions of time we cannot regard as a folly of the "Primitive," although it may form an inconvenience to our time-bound minds. Rather may we envy him this freedom. Every time that I walk through a London street I feel how awful and how foolish is this hurry and bustle, all to save time—time for what? Sometimes our so-called civilised life seems like the man who spent all his day doing exercises to keep fit, but was completely dumb when some cynic asked him—fit for what?

Among the Borneans also there are only a few real

artists, although there are many craftsmen, and it is impossible to draw at any point a dividing-line between the two.

The ordinary man has not the time or inclination to devote to the creation of decorative articles, although it



is probable that the sense and desire for decoration is as strong among the Borneo folk as it is with us, and that almost every man has some craftsmanship ; for even in a country as rich in forest products as Borneo, the fruit does not drop off the tree into one's mouth. The smiths and the artists are kept by the community while at work, or keep themselves by demanding pay for their product

and buying food from other members of the community ; often also the artist is fed by the employer as part payment.

I will only attempt to deal with the art of the tribes of that part of Sarawak with which our expedition came into contact—the Punans, the Kenyahs, the Kayans and the Sěbops of the Tinjar River around Mount Dulit, and to a lesser extent with the coastal race of Ibans or Sea Dyaks, which I saw when I went to the Niah caves.

It is almost certain that originally the island of Borneo formed part of the mainland of south-eastern Asia. The peoples who formerly occupied this area have been termed “ Indonesians ” ; it is probable that the peoples of Borneo are survivors of this widespread race in which the long-headed or dolichocephalic skull has mingled with Mongol broad-headed or brachicephalic elements.

The Punans are the most “ primitive ” of these peoples. They have less material culture and decorative art, being nomads without permanent houses, practising no agriculture and living on jungle fruits, berries, roots and animals shot with a blow-pipe and poisoned dart. Such little ornament as they may have about their persons is generally the product of the culture of other tribes with whom they trade. It would seem that a settled life was almost a necessary factor in a hot climate such as Borneo for the evolution of any definite art-culture ; and in this respect the Punans differ from the nomads of Upper Asia, who have developed a high standard of culture. There are records of crude drawings by Punans on the walls of caves, but we did not see any.

Practically everyone who came to our camp was tattooed. It was probably the most widespread of all the arts in Borneo. We saw a very great variety of designs among the men and women who came to visit or to work for us. Especially would those of the



Carved in wood, monkeys on the poles of Long Miri house.



The art of the shield and the sarong.

aristocrat class be finely tattooed with a multitude of very fine lines. Often indeed a large part of their bodies was covered with such work. Several of the ladies had their hands and forearms so completely tattooed that it seemed as if a long black gauntlet had been drawn tightly over the skin. Such tattooing must have taken a long time and been very painful, but such endurance of pain for beauty's sake is not peculiar to Borneo.

Harrison and Ford had tattoo designs done on their arms, and Ford gives this account of the process :

“ When Hobby and I were at the Punan house of Long Kebak, on the Nibong River, I discovered a means of passing an instructive afternoon by getting an artist to put a tattoo on my arm. Otong, a chief from a neighbouring Sēbop house, who was acting as our dragoman, was very anxious that it should be a worthy specimen of Ulu art, and he himself prepared the design. The ink is made by mixing charcoal, derived from burnt dammar, with the juice of the sugar-cane. By way of precaution I gave the operator a few crystals of permanganate to add to the ink. When these preparations were finished, I was instructed to lie on the floor. ‘ Go to sleep, Tuan,’ someone said—and my arm was stretched out at the side, so that it lay flat on the floor. Otong then squatted beside me and, with a wooden stylus dipped in the ink, drew the design very carefully on the appointed place. This took about fifteen minutes. The man who was to do the tattooing then took his place and examined the design minutely, while Otong indicated the difficult places. The tattooing tool is a piece of wood about nine inches long, to one end of which are attached, at right angles, by means of a pyramid of plastic gum, three needles, set close together to form a triangle. The needles are dipped in the ink and held over the design in the left hand while, with a springy

stick in the right hand, a continuous tapping is maintained which drives the needles sufficiently into the skin, but scarcely enough to draw blood. The operation had to be performed three times before it gave satisfaction and took over three hours. I gave ten cents and a handful of Siam tobacco for this service, with which the artist was well pleased.

"Tattooing, which is practised by all the tribes, is, among all save the Punans, the business of women. Before we left camp we were visited by an old woman who was well known for her skill in this art, and Harrison decided that he would be decorated. Before she began, the old lady requested the loan of two silver dollars. Tom lay down and, holding the dollars in her hand, the old lady muttered an incantation and then placed the coins side by side near his arm. We were given to understand that the dollars served to cover up the eyes of the old lady's spirit so that it should not perceive blood. It is usual, instead of drawing on the arm, to use a carved wooden stamp—for the designs are all stereotyped—to impress the design. While the tattooing was in progress, the operator's assistant sat on the opposite side of the arm and held the skin taut with her toes. 'And now,' said the old lady, when she had finished, 'will you make me a gift, Tuan, to show that you bear me no grudge for having shed your blood?' So Tom gave her two large bath-towels, and at our borak party that evening she appeared proudly draped in them."

Often the same designs recur in many different places, as tattooing, as wall decoration in the Long Houses, as decoration for bamboo tobacco pouches and quivers, as flat carving, as the prow of a canoe or the end of a sapeh.

The commonest of all these patterns is the "Aso" pattern. We were told that this was derived from the dog, although it was in most cases completely symbolised.

It was always asymmetrical and was made up of a number of curves radiating from a circle, generally towards one end, which was thought of as the eye. It is noticeable that these people hardly ever used patterns which involved rectangular or symmetrical forms. Spirals and curves dominated their work.

In New Guinea there are also spiral designs which Professor Haddon tells us are derived from the bill of the frigate bird. In Maori tattoo designs from New Zealand we also see somewhat similar designs. Harrisson has suggested to me that such designs show the same unconscious desires as those of the men who built the maze of Knossos, a labyrinthine and, according to some psychologists, he tells me, an intestinal mentality.

Harrisson suggests that people who make spiral designs are descended from those who practised and are still influenced by matrilineal succession, and that in their society women occupy a more important position than in places such as Tahiti or the New Hebrides where the succession is entirely patrilineal and the patterns are primarily rectangular. It is interesting that it is very rare indeed for rectangular designs to be found in Borneo, while in the New Hebrides they are primarily rectangular, but how far this fact can be linked to a primary difference in patrilineal or matrilineal succession I don't know. In Borneo the young man goes to the girl's house rather than the girl to his house.

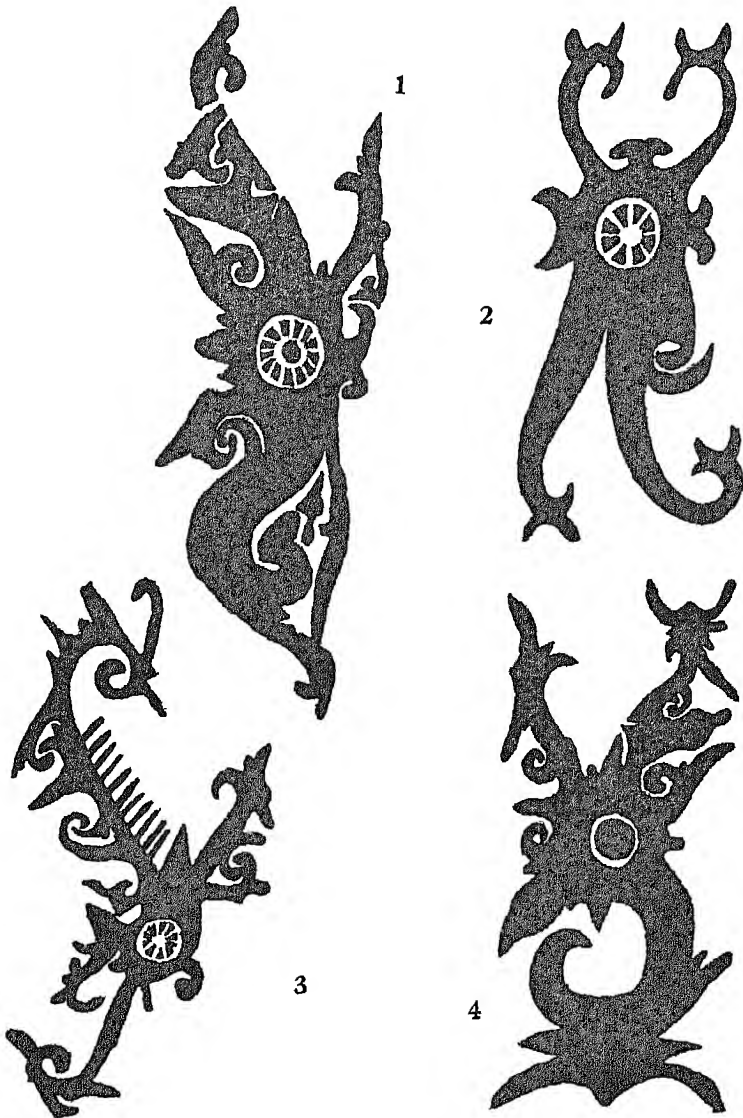
Even in the earliest forms this "Aso" pattern bears little resemblance to the ordinary dog found in their Long Houses so plentifully, and treated with such scant respect; in its latter forms there is no resemblance whatever. But does the "Aso" really represent the dog any more definitely than the spirals of New Guinea represent the bill of the frigate bird. Is the argument as to the exact derivation really a useful one? It seems

possible that the psycho-analytical explanation may be the best, that the "Aso" is not only dog, but the whole life, a subconscious rendering. But then why are such designs not found in all the countries between Borneo and New Guinea? It can't be diffusion, and to that extent our explanation is not completely satisfactory. It is also interesting to note the convergence, possibly both in form and aim, of modern European abstract and surrealist art and the "primitive" art of the Borneans.

The design is suggestive of a Chinese dragon, and it seems to me not unlikely that it partly owes its origin to the influence of that design. These designs bear a resemblance to the dragons found on jars of Sung and Ming periods. Jars of such style are frequently found in Borneo, where in many places old Chinese jars and beads are regarded as objects of very considerable value and are used as currency. There is also evidence in early Chinese writings of trade with "Poli" or "Puni," the district which is now called Brunei, but which probably in those days signified the whole of the Borneo with which the Chinese were acquainted. As early as A.D. 518, Chinese records indicate that envoys were sent from Poli to the Imperial Court.

How old the Bornean dog pattern is, we do not know; but it is certain that the Chinese jars found their way into the interior, being exchanged in Brunei for jungle products, long before the Chinese traders themselves penetrated any distance up river. Indeed, it is only since the government of the Rajah Brooke that the Chinese have been able to travel in the interior with any reasonable degree of safety.

It is, of course, possible that the resemblance of the Chinese dragon and the Bornean dog pattern is a case of convergent evolution in which the two designs developed independently, gradually becoming more and more similar. Both designs may then be considered as separate

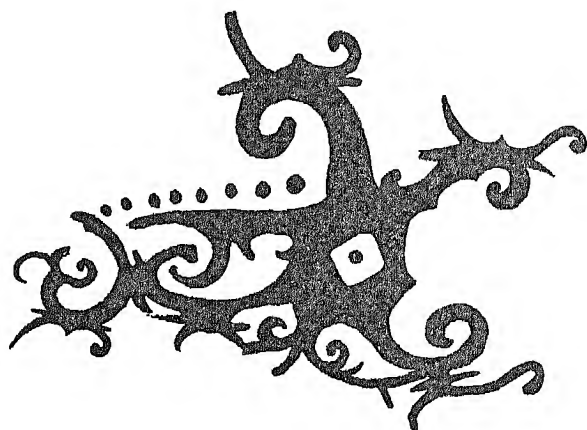


DERIVATIONS OF THE BORNEAN DOG PATTERN

1. Kayan dog design for thighs of man.
2. Sea Dyak scorpion design for thigh, arm or breast of man.
3. Kenyah modification of the dog design, but known as the prawn pattern.
4. Kenyah, hook pattern.

responses to the almost universal habit of drawing curves with the consequent evolution of these curves into a formalised pattern. It seems to me likely that the Chinese dragon has been a factor in the origin and evolution of the Bornean dog pattern.

In this way the problem and the theories present a close parallel to those arguments brought forward in attempts to solve the question of the distribution of species in the plant world—a question to which no satisfactory answer has yet been found; meanwhile the



Tattoo design on Harrisson's arm.

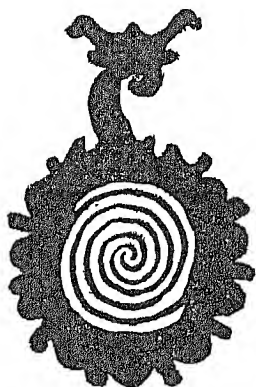
arguments are of interest and often of value in solving other smaller problems.

It is interesting to observe the different names which are given to variants of the "Aso" pattern. The Kenyahs frequently use a modification which they told us represented the prawn. In this pattern the very prominent teeth in the jaws of the dog have suggested to them the prominent rostrum of the prawn, after which they have named the design. Large freshwater prawns of the genus *Palæmon* are common in Borneo and are caught for food. They are not unlike large crayfish.

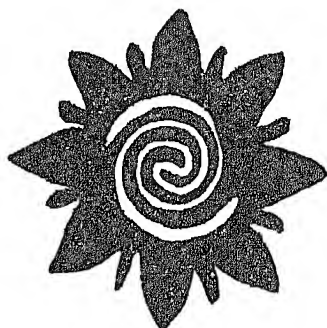
The Sea Dyaks have many wild variations of the dog pattern. The original design is Kayan in origin, but in their copies they have allowed their minds to walk so far with the line that they have turned it into a tangle, which appears to have less vital meaning than the original, although distinctly decorative. The plate on page 187 shows the scorpion variant of the dog design; the rosette-like eye of the dog pattern still persists, but without any apparent significance to me; the chelæ and posterior processes are formed from the limbs and jaws of the dog, although the scorpion has only one posterior process, consisting of a tail with a sting, two are represented in the design, and both face the same direction; in the dog design both limbs and jaws face inwards. These "Aso" designs are generally used for the tattooing on the arm. Harrison's and Ford's designs were variants of this pattern.

On the shoulders there is generally tattooed a disc-like design, sometimes a central eye with a dark surround and a jagged edge, often a labyrinthine spiral. It seems likely that this design is derived from the eye of the "Aso" pattern, and the Barawan design, illustrated on page 190, shows an intermediate form. But among the people it is curious that the disc is said to represent a species of mango or a durian. Durian are very large oval fruits covered with harsh spines. Their scent and flavour are famous and also indescribable. Go to the East yourself to experience them. These are some of the few designs attributed by the people to vegetable motifs. The majority of their motifs are animal.

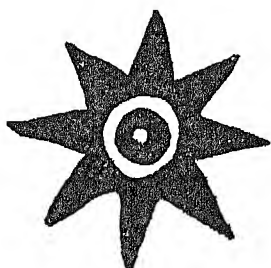
Unfortunately we have not a photograph or drawing of one of the fine tattoo designs of the ladies' forearms. I am indebted to the Trustees of the British Museum for permission to reproduce these designs from Hose's and MacDougall's book which is still the standard work on the people of this part of Sarawak. The design



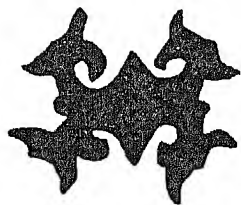
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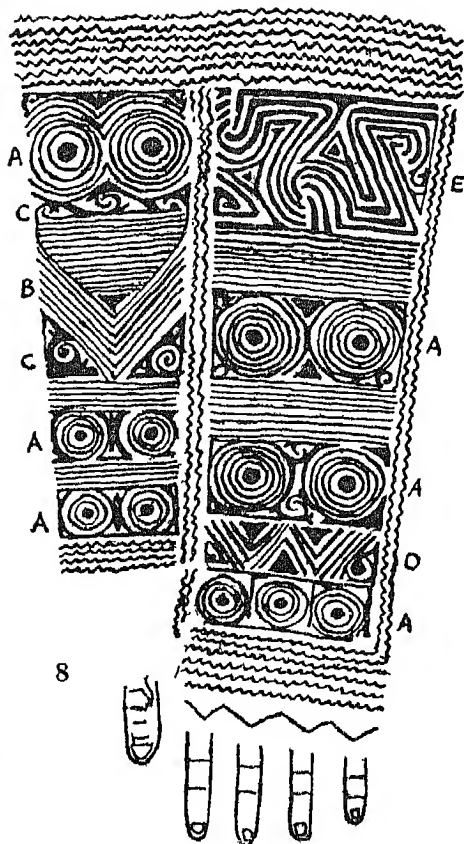
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5. Barawan design for the shoulder or breast of man.
6. Kenyah design representing the open fruit of a sp. of mango, for shoulder or breast of man.
7. Kenyah design representing the durian fruit, for the shoulders or breasts of man.
8. Design on forearm of Kayan woman of high rank : A=full moon, B=bows of a boat, C=hooks, D=leaves of bamboo, E=bundles of tuba root.
9. Kayan bead (lukut) design, for wrist of men.

is very complicated, but it is very similar to many we saw. Doctor Hose says that it is held to include representations of a number of different things including full moons, the bows of a boat, hooks, leaves of bamboo and bundles of tuba root.

The Kayans, in particular, excel in tattooing, and among them there is this legend of the origin of the practice :

“ When, long ago, the plumage of birds was not so bright as at present, two birds—the Argus Pheasant (*Argusianus grayi*) and the Coucal (*Centropus sinensis*)—agreed to beautify each other by means of tattooing. The coucal started, and the present fine plumage of the argus pheasant shows how well he succeeded. Unfortunately the argus pheasant was not so clever and, soon getting into difficulties, saw no chance of completing the decorations successfully, therefore he determined to play a trick on the coucal. He first smeared the black dye all over the other bird, and then told the coucal to sit in the bowl of tan. Leaving the coucal in the tan, the argus pheasant flew off, remarking that the country was full of enemies, and therefore he could not stop any longer. The coucal still has a black head and neck with a tan-coloured body.”

Tattooing in Borneo has undoubtedly in the case of the women a definite magico-religious significance. It is not mere decoration, although it seems that recently that factor has gained importance at the expense of the magico-religious ceremonial. I think that this is a natural process and has little or nothing to do with the influence of Europeans in the country. Ceremonial is particularly evident in the process of tattooing, and the women seem to attach more importance to the designs than do the men. They believe that the tattooed designs will serve as torches to guide them in their long journey to the next world where they will provide a means of ready identification for them. Without their tattoo marks they would wander for ever in darkness. I think that this belief largely accounts for the fortitude with

which they bear the pain involved in their very extensive tattoo decorations.

The Kenyahs also believe that only tattooed women will be able to bathe in the heavenly river, "Telang Jalan," and that only they will be able to pick up the pearls that are found in its bed ; further, incompletely tattooed women can only stand on the bank, while untattooed women will not be allowed to approach the river at all.

The actual process of tattooing is nearly always done by women and is surrounded by traditional ceremony and taboo. The pigment used is a mixture of soot and water with the addition of a small amount of juice from the sugar-cane.

There is a definite idea that the process of tattooing is associated with danger, and the professional tattooer is under the guardianship of some spirit while she is working, and must order her manner of living and the foods she eats to certain rules ; if she is disobedient, she will suffer from failing health, or her designs will fade. She may not work while her children are young, and must not interrupt her tattooing for any other work. Her food is cooked and brought to her by the parents of the girl she is tattooing. The work is nearly always begun about the ninth day after full moon. In spite of the absence of all precautions, the wound rarely ulcerates.

In many cases the people may no longer know the reasons for what they do, and it is owing to this dying-out of the beliefs behind the traditions that there is a definite decline in the magico-religious side of tattooing in favour of the pure decorative art. They also, naturally, hesitate to talk about such matters to comparative strangers, believing that undue discussion might not please the spirits and the designs might fade.

It seems that the idea of danger partly emanates from the fear that evil spirits carrying illness may enter

through these punctures or that the soul may escape from the body through them. The seals which the skin normally provides prevent any communication between the inside of the body and the outer world. The seals are broken by the punctures, and special precautions must be observed.

Among the men the idea of decoration undoubtedly predominates ; in fact, it has been suggested that tattoo among them is merely a means of aiding natural selection by attracting one sex to the other.

Only men who have taken a head are allowed to have their hand tattooed ; for a share in the taking of a head, one finger is allowed. Few of such warriors now remain, as head-hunting is forbidden by the administration. In joke they will often ask when the " Tuan " is going to have his hand tattooed.

There is also an interesting custom of tattooing a bead design round the wrist. When a man is sick they believe that his soul has temporarily left his body ; he becomes well when the soul returns ; naturally he then desires to keep the soul from departing again, so he fastens it in with a bracelet or an antique bead round his wrist. This is termed a " lukut," and contains some potent magic. Since it is a matter of some importance to him to retain the charm intact, and since string may easily get broken and the beads lost, he tattoos their semblance on his wrist, exactly below the real beads.

Originally the " lukut " design was a charm to prevent the second escape of the soul, but now it has become a charm to ward off all sickness.

They do not ornament their bodies by means of scars. Sometimes, however, a row of small scars will be found along the forearm. These are marks of bravery. The men will sometimes test their indifference to pain and display their bravery by setting fire to a row of small bits of wood placed along the forearm. The

scars caused by these burns may be permanent. Such scars, however, are rare, although there is no indication that the bravery of the natives has decreased since the government introduced a more peaceful régime.

In the illustration facing p. 86, will be seen a curious game in which the man climbed all round a bridge of arms made by two other men. He would start on the ground, go up the back of one man, over his head on to the outstretched arms, along them to the other man, down his back, through his legs and along the underneath of the arms, clinging as a monkey to the back of the first man, when the performance would be repeated. This was considered a great feat of strength, and so it must have been. At other times a man would balance himself and hang from a pole carried between the shoulders of two men, merely by supporting one elbow on the pole.

The possession of steel instruments has undoubtedly also played a very important part in their arts and crafts. Many of their carvings are made from extremely hard woods which it is only possible to work with very sharp knives.

Originally the iron was obtained from ore found in the river beds and from meteorites ; now, however, the bulk is obtained from Chinese and Malay traders. The smelting and forging are still done by Bornean tribesmen and demand considerable skill.

All men carry a parang or short sword with which they cut their way through the forest. Formerly they were used for chopping off the heads of their victims, and one blow was generally sufficient to sever the neck.

We often used a parang to cut through the forest, but never could acquire the skill with which the Bornean habitually uses it, frequently taking five or six blows to sever an obstruction which he would cut through in a single stroke. It is not a question of force, but of wrist and method of striking. These parangs often have finely

inlaid and decorated blades and elaborately carved handles made from bone and decorated with hair. We saw many fine specimens and were able to bring home one or two. The inlaid pattern on the blade is made by punching small holes and threading through copper wire; the wire is then cut off flush with the blade, and the ends are hammered in until a smooth surface is obtained. This must involve a very considerable amount of skill and patience since some of the best blades are almost completely covered with design.

This pattern would appear to have been originally derived from the "Aso" pattern, which has become an animal with a long, willowy, undulating body and numerous limbs, a natural adaptation to the shape of the parang, somewhat reminiscent of a crocodile.

Perhaps the finest piece of craftsmanship of all is the blow-pipe. So accurate is the work on this that several people have suggested that it must have been made in two pieces and then joined together. Others have suggested that it was made out of some easily bored substance such as bamboo. Both these suggestions are incorrect. The blow-pipe is made out of strips of very hard wood, which is bored with an iron rod.

For its manufacture the selected piece of wood is fixed in a vertical position with one end projecting through a small platform; the craftsman stands on the platform and bores with the chisel-headed end of the iron rod, bringing it down sharply on the centre of the hard wood, twisting it, and repeating the operation until the whole pipe is bored. The pipe is about eight feet in length. The fact that he brings down the iron rod in the centre of the wood each time shows the typical Bornean complete co-ordination between eye and hand. The chips of wood are floated out with water.

In the lower part of the pipe a slight curvature must be produced in order to compensate for the bending caused by the weight of the spear which is lashed to the

end. This is made by bending the lower part of the pipe slightly during the process of boring. Both inside and outside are carefully polished before they are considered ready for use.

The darts which are blown through the pipe are made chiefly out of the nibong palm ; they are about nine inches in length, and to their ends are attached short pieces of pith, fitting exactly the tube of the pipe. If the pith did not fit exactly, the air would escape without propelling the dart. The darts are sharpened to a fine point and are poisoned with a paste prepared from the sap of the Ipoh tree.

Many of the men around us used these blow-pipes, and we also practised until we could send a dart some distance.

Both hands are held up close to the mouth to use the blow-pipe. It is not held as the European holds a gun ; many, however, of the people, particularly among the Punans, are exceedingly good shots with the blow-pipe and will frequently hit a small mark at thirty to fifty yards, shooting either horizontally or vertically upwards into the forest canopy. It is not necessary to blow very hard. A short, sharp puff and not a hurricane of wind is required for the propulsion of the dart.

The darts are carried in quivers made out of bamboo and ornamented with the most intricate designs. Bamboos are moderately common in the forests of Borneo, but only the species with very large stems is used, and sometimes it is cultivated, since it plays a large part in the Borneans' decorative art and frequently in their building work. It is easily worked and is used for the making of many small articles, including drinking-cups, dart quivers and tobacco-pouches. Every man carries such a pouch attached by a string to a piece of wood, which is slipped inside his loin-cloth or trousers next to the skin. It is possible in most cases to trace the derivation of the designs used for their decoration direct to the

“Aso” pattern, but many are so intricate that there is little chance of unravelling their present meaning.

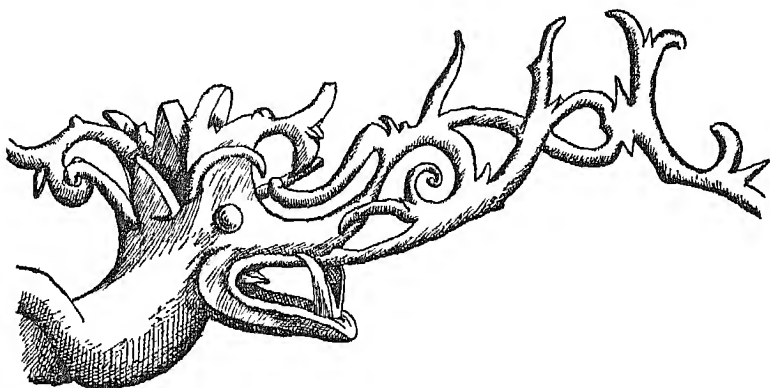
The design is outlined with the point of a knife and is generally made to stand out in very low relief. The effect is accentuated with a coat of black or red paint, which is smeared over the whole and then wiped away from the raised portions. These are left outlined in the natural bamboo against the coloured ground which forms a very effective ensemble.

Bamboo is also used sometimes for the floors of the Long Houses, particularly among the Ibans who move house more frequently than the Kayans or Kenyahs, transporting the larger timbers and rebuilding the house each time. House-building is a most important craft, since the Kayans and Kenyahs do not generally inhabit one house for more than twelve or fifteen years, while the Ibans frequently move after four or five years' residence. We never saw a removal, but there is no doubt that Long Kapa, the nearest house to us, had moved recently since the present house is situated about two miles from the mouth of the stream from which the house takes its name. A frequent cause of removal is the exhaustion of the soil around the house. Other causes are fire, epidemics or a succession of bad omens. The last is frequently made to coincide with the former causes and will be given as the nominal reason for removal.

Built entirely of jungle products, in the houses not a nail is used; they are entirely a botanical product since all the joints are bound round with rattan, which makes them perfectly firm. Rattan is prepared by stripping the stem of a climbing palm of the genus *Calamus*, which is tough and flexible as cord. The hard woods, such as bilian, are used for many of the more important structures of the house. The roof is generally made out of slats of bilian and is thatched with leaves from the nipah, nibong or *licuala* palm,

the materials used depending on the products of the neighbourhood.

The Long Houses are often decorated with some fine carving. On the doors of the rooms of the chief families, human or animal figures are sometimes carved, even as a crest is carved over the door of some baronial hall. Monkeys and other animals are depicted climbing up the poles on the outside of the house. Carvings of the same type are also found as figureheads



Figurehead of Canoe.

for their long boats, particularly their war canoes. A crocodile head is a frequent form used for this purpose, and it would seem most suitable when we consider the analogy between the predatory reptile and the war boat, both darting through the water and swooping rapidly on their prey. The long boats themselves are indeed as works of art as fine as anything made in the country, but generally these figureheads are elaborate carving patterns, derived from a combination of the real conscious and the Aso subconscious, and often similar to those of the Solomon Islands, Pacific Ocean.

Rather contrary to the majority of his works of art, there is often something very lifelike, even something very alive about these forms, which show the native's



Poling up river, through the rapids.

The mat is worn ready for sitting down.



keen observance of the animals of the jungle around him.

Apart from such arts and crafts of domestic and personal importance, the main work is devoted to the ideas of war and of death, and the two are closely connected.

Occasionally the warriors would come to visit us dressed in their finest war-coats and carrying shields. Hobby and Ford saw many also attired like this at the funeral of the great chief. Only on very special occasions are their coats of hornbill feathers brought out.

On his head the warrior wears a close-fitting cap ornamented with one or more long feathers taken from the tail of a hornbill; these feathers are white, red and black, and very handsome. The cap is made out of split rattan closely woven together and would provide considerable protection against the blow of a parang.

In his ears an important man will wear as part of his regular garb a pair of canine teeth taken from the tiger-cat, *Felis nebulosa*. It is surprising how many of these tusks the men possess since the tiger-cat is now very rare, probably owing to this custom. Originally the possession of a pair of teeth proved a considerable skill in hunting; but now it seems likely that many of the teeth at present in use have been handed down from father to son or have been bought from Chinese traders. Few Europeans would care to tackle a tiger-cat with only a spear and a short sword. The beast is the size of a small leopard, cunning and ferocious.

From the skin of the tiger-cat the Kayan and Kenyah war-coat is frequently made. If no such skin is available, however, some lesser skin, such as goat, may be used. The back of the coat is ornamented with hornbill feathers, which hang loose. Indeed, as attire it is finer from behind than from the front. The chest is sometimes covered with oyster or other shells. Hornbill feathers used to be confined to those who had taken part in a head-hunting



Kenyah Parang, with
carved handle.

War Cap, with hornbill feather, beads and hair.

expedition, but this does not seem to be observed now. Our photograph shows three men wearing such coats ascending the ladder of a house.

A large shield about four feet in height is also carried ; this is made out of soft wood so that the parang of an adversary may sink into it and become fixed. It is bound round with rattan to prevent the parang splitting it in halves. The shield is cut out of a single piece of wood, and the two sides are shaved so as to meet in a ridge along the centre ; both ends are pointed, and the back is a hollow curve with a bar which the fighter grips.

These shields are decorated with fearsome carved patterns usually representing a human head. The eyes are the most prominent feature and are indicated by large concentric circles painted in red and black, while below them project two large tusks, representing the canine teeth, and a double row of more ordinary teeth. The shield is covered with tufts of black human hair which largely obscure the pattern, but make the general effect more gruesome, and the two large eyes are nearly always left peering out from among the hair. Human figures are painted on the inside of the shield. One of these is generally a female, so that the warrior is constantly spurred on to heroic deeds by the reminder of female charms and the extra merit which he will gain in their eyes on his return.

The women also have their arts ; they make hats, the most superb hats I have ever seen ; in fact, they are more like parasols, or even Homeric shields, than hats. They are circular in shape and generally flat or slightly conical in form ; their diameter is often as great as two and a half feet, and sometimes they are also ornamented with a hornbill's feather which is only very slightly smaller than the more familiar ostrich feather. These hats are made out of palm leaves and rattan, and painted with brilliant colours, red and black and blue. Many are also ornamented with beads.

The people of Bintulu have brought this hat-making to a very fine art and frequently sell a number of their best hats for mural decoration in European bungalows, and indeed the effect is most decorative. The palm leaves are first pressed and dried, even as is the wearisome custom of botanists, and then they are cut into triangular pieces, and sewn together in two layers, one radiating from the centre, the other from the outside. The edge is made with a circular strip of rattan, and the hat is strengthened with thin radial strips of that material.

Both men and women wear these hats, and they serve to keep off sun and rain when they are working in the padi fields. Small skullcaps of rattan or palm are attached to the inside, which fit the head firmly, and are secure in everything but a high wind ; only once did I see a man pursuing one which was bowling along before the wind like a hoop. These hats were obviously not worn in the forest, where the men went bare-headed or wore a small closely-fitting cap of rattan. It is a fine sight to see a procession of Kenyah ladies of the aristocrat class advancing in full attire in these magnificent hats ; they hold themselves with dignity and move with grace. Often their features are regular and striking, and the effect is heightened when framed between the hat and two gigantic ear-rings dangling from the lobes of the ears.

In many cases weights of several pounds are hung from the ears in infancy, stretching the lobe out into a long loop. Indeed, there is a tale of one lady whose ears were so long that she could put her head through the loop. Unfortunately we did not meet her, but many we saw were quite six inches long.

Round their necks both men and women wear a charm of beads. This they prize exceedingly and will never part with.

Basket- and mat-making is also the work of the women of the house. The articles are made from strips of rattan

plaited together into a number of most interesting designs. Some tribes excel in brilliantly coloured basket-work, but the tribes of our area generally produce only plain-coloured baskets, which are strong and serviceable. The mats may be ornamented, particularly the sleeping-mats, which form an important part of each man's few personal possessions. They also make small sitting-mats which the men wear dangling from the backs of their coats—a most excellent, even if slightly comic, idea which might well be followed in our damp climate.

The majority of the Tinjar tribes have cotton coats and chawats (loin-cloths), the material for which they now buy from Chinese traders. The Punans, however, still make bark coats, and formerly the use of this material in all tribes was much commoner. The bark is well smoothed and hammered out flat before the coat is made; the coats do not look particularly stiff and are by no means unsightly.

The Ibans alone now weave their own cloth. They cultivate cotton for the purpose and pull away the fibre from the seed. The thread is spun on a simple wheel and is then dyed only if a pattern is required. The cloth is woven on a long frame on which the warp is stretched. One end of the loom is fastened to a stout post, while the other end is secured to a loop which the weaver wears round her waist, thus keeping the warp taut. Many fine patterns are found, but these are formed by differential dyeing of various parts of the warp before the actual weaving is begun.

We were excited at Long Miri when we saw outside the house several very strikingly carved posts, six to eight feet high, and painted in bright colours. The work even here was asymmetrical and was not finished with the same perfection as their flat decorative work, but it was far more "powerful." There were crude faces and a figure with arms outstretched, great circular eyes, both anthropomorphic and zoomorphic designs. The people of Borneo

are believers in spirits and have a mythology which bears at least some resemblance to that of the ancient Greeks. They may serve as occasional altars on which offerings may be made to keep off the evil spirits of the forest or to give thanks on returning from a successful expedition, also they represent ancestral guardians. Hartley has dealt with that.

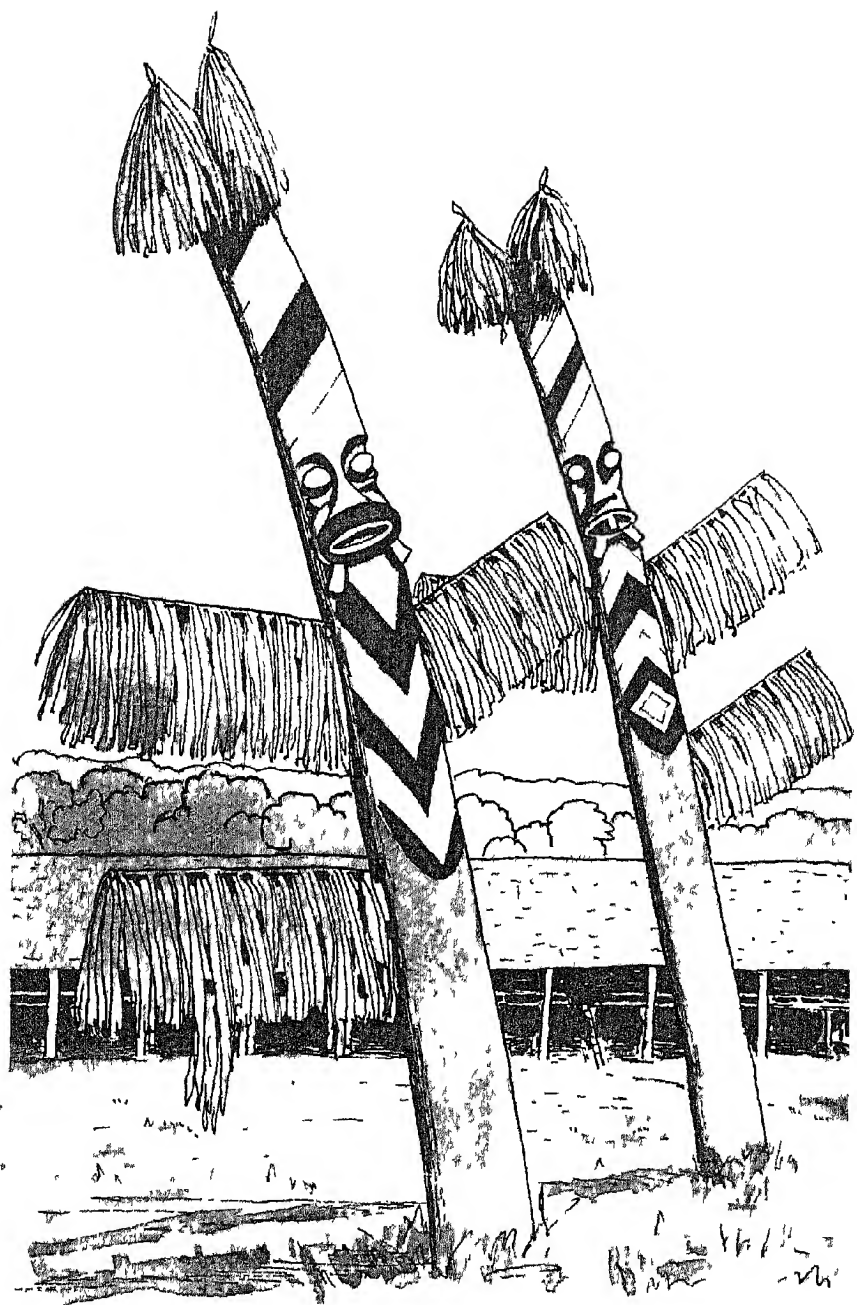
They have a rough dignity, and are hung with dried and frayed banana or palm leaves which dangle as ribbons. There is a widespread belief that frayed wood or leaf keeps off evil spirits and brings good luck. The vast forests are most conducive to the belief in some awful power which must be appeased, and undoubtedly the Bornean feels this. If a man is left alone in the forest for a time, he will not generally go straight off to sleep, but will guard himself from the forest spirits by fraying all the small wood around him and standing frayed sticks up in a row.

On the top of the Dulit range in the headwaters of the Tinjar, where it is possible to cross without entering the moss forest, there were three of these enormous carvings to which small offerings were made on crossing the pass.

On an expedition sometimes the omens must be consulted, and rough altars are built out of stick or bamboo in the same way, and spirits appeased by much chanting and drinking. The frayed sticks which are in the nature of images are given small drinks of rice spirit in little bamboo cups, while the chanter takes considerable draughts.

As we journey up river from a Long House, the tombs of the chief men and women, who have died recently, attract attention by their striking carving and painting.

They are situated on the river banks generally a few hundred yards above the house. From Long Miri, on the Tinjar, where we stayed a night, a small boy paddled me up river to see some which had been recently built, and they were indeed very fine, standing twenty



Carved and painted posts like scare crows outside a long house.

to thirty feet in height, covered with intricate carving, and painted with bright reds and oranges and whites. Great eyes and willowy dogs were painted on the main trunk. The base is normally made out of a single tree trunk on which a small chamber containing the coffin is built. Sometimes a small window is left in this part. "Flags and banners" are hung from the sides.

These tombs were the finest works we saw, and in them the two-dimensional decorative carvings of the Aso and the spiral have almost attained to a three-dimensional state. Backed by the dark forest, they have a barbaric magnificence which is most thrilling to the European used rather to the less brilliant greys and browns of our church-work and tombs. Here was no aspect of black mourning, but a highly-coloured tribute and rejoicing in a chief who had been much loved—a magnificence which will probably last as long as those who remember him and their children's lives and then melt back again into the forest. That seems to me good psychology. The generation of to-day does not reverence the great men of past generations because of vast stone monuments.

The Borneans believe that the soul continues after death, and its future state depends to some extent on the way in which the man has lived and very closely on his manner of death. After wandering through jungle and over mountain, he reaches the valley of a great river, the Long Malan, which may be compared to the Styx of the ancient Greek. This river he has to cross by means of a single log, presumably slippery. If he has not taken part in a head-hunting expedition he fears that he may receive no help from the guardian spirit and so may slip into the river below and be devoured by maggots or giant fish. There are various legends of a figure who helps the souls across the river—a figure who would roughly correspond to the Charon of Greek mythology, who ferried the souls across the river Styx.

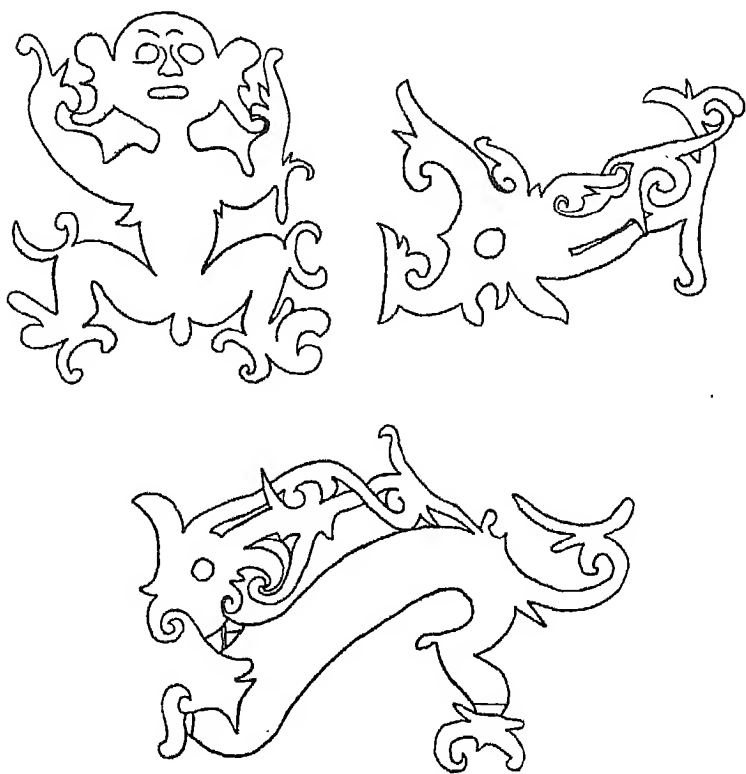
The Punans are said to believe in a vast hornbill which sits on the far bank, screaming. This bird terrifies the souls. The raven is surrounded by a somewhat similar superstition and veneration. There is also a woman called "Ungap" who aids the souls to cross if she is appeased with a gift. A pebble or a bead suffices, and is placed in the nostril of the corpse.

A special heaven is reserved for those who die in war; they live in comfort and become rich, albeit doing no work. The idea is similar to that of Valhalla, where the Norse heroes feasted. Such a belief is naturally conducive to reckless bravery in battle, a characteristic of many peoples in the earlier periods of civilisation, when the method of fighting was more a question of individual effort. According to the belief of some Borneans, women dying in childbirth also go to the same special heaven as the men who die in war, and the two intermarry.

We have found, therefore, that the representation of the forest and forest products does not form an important part of Bornean work. But, nevertheless, it does seem to me likely that in his pattern and curves he has been influenced (maybe unconsciously) by the shapes of the leaves and the twists of the lianas, that his decorative scrolls, particularly the work on bamboo, may be in some way a rational simplification of jungles, leaves and forms.

The human element, with the exception of the eye, is also rare in their more formal art. Practically the only human designs were those drawn in joke by a man at our camp, and even they run off into the "Aso" scroll-like patterns. They do not seem to be influenced so much by an anthropomorphic as by a zoomorphic idea of the spirit world. I think that the eyelike representation is natural to any people who live close to Nature and are conscious of spirits around them, eyes in the forest, as indeed any sensitive person is likely to feel,

although, if "ultra-civilised," he may put the feeling—and it is more a feeling and a sensation than a sight—behind him so often that he loses it. It is difficult, almost impossible, I believe, to live part of the civilised life of European cities and still retain those fullest sensations of awe and awareness of eyes in the green tangle of the forest, where everything curves and spirals in profusion. But those, whom too many of us still call and think of as primitive people are aware of them.



A Borneo Man's "Fun" Drawings.

THE ASCENT OF MULU

By

EDWARD SHACKLETON

As surveyor, Eddie had hard work in the first months of the expedition. He chose to do an even harder job in the last period—to tackle the several times attempted Mt. Mulu, highest peak in Sarawak and in 1932 widely regarded as unclimbable.

In the same spirit as his subsequent organisation of the big Ellesmere Land Arctic Expedition and in the same clear style as in his successful book *Arctic Journeys*, Shackleton gives his account of this expedition's achievements.

T. H.

THE ASCENT OF MULU

NEARLY seventy miles away from our main base stood the mighty limestone mass of Mulu, and its mysterious bulk towering eight thousand feet above the headwaters of the river Tuto was on rare occasions visible from the High Camp perched on the mountain-side of Dulit. Reputedly the highest mountain in Sarawak, it has until recent times been considered unclimbable owing to the precipitous cliffs of the foothills which in places rise a sheer two thousand feet. The history of previous attacks on the mountain is uncertain, but it is known that before the war an attempt lasting twenty-five days was made by Ernest Hose, brother of the famous Dr. Hose, from the same side as that from which this ascent was successfully made ; and a Sarawak oil-fields geologist is also reputed to have climbed up to a considerable height. But in every case the sheer cliffs which, on the southern face of the mountain, are particularly spectacular, defeated any who tried the ascent. The chief problem was primarily one of supply since it is rarely possible to travel far through the forests of Borneo away from the rivers ; and particularly at higher altitudes is game lacking.

The huge and widespread mass of Mulu is more in the nature of a mountain system than a solitary mountain. Secondary ridges radiate in all directions, and there are several peaks on the summit-ridge of almost equal height. About ten years ago a native, Tama Lilong, while hunting rhinoceros, followed a trail which led him past the cliffs until at last he found himself on the main south-west ridge of Mulu, over five thousand feet up. The difficulties that he encountered were such that he

only succeeded in returning to the village on the river, a mere thirty miles away as the crow flies, after thirteen days, during the whole of which time he had been without food. Under the guidance of the same man, it was this trail which finally brought us within striking distance of the summit.¹

However, when I left the Government Station at Marudi on 7th November 1932, it seemed out of the question to make the ascent owing to the heavy monsoon weather ; one of the many fallacies about Mulu being that it is barred by vast swamps at different altitudes. In addition, the natives were planting their rice, and it was considered unlikely that they would be willing to leave their fields to act as bearers. Nevertheless, thanks to the kindness of Mr. Pollard, the D.O., I was able to establish very friendly relations with the Penghulu (Chieftain) up river, without whose co-operation this expedition could never have succeeded. The District Officer had also arranged for an ex-sergeant of the Sarawak Police, a Sea-Dyak, by the name of Dian (who had also accompanied Dr. Hose), to accompany me, and I had also one of the expedition " boys," a fifteen-year-old Chinese-Malay, named Su'ee. Their efficiency and loyalty were to be fully tested before the trip was through.

It had rained steadily for many days ; Marudi Bazaar was deep in water, and conditions for travel were thoroughly unpleasant. The river was in high flood ; there was the usual huge quantity of timber drifting downstream, and the outboard motor-boat which I had hired from a Chinaman only just managed to make its

¹ It is worth noting that although no natives had visited the summit, over 2000 ft. above this ridge, frequent trips had nevertheless been made along the same trail—a fact categorically stated by the natives themselves, as well as being definitely proved by the large number of temporary shelters made out of saplings and roofed with native mats, which were dotted along this ridge, and some of which were clearly several years old. Thus, in November 1932, the path to Mulu had been open and well known to certain natives for several years.

way upstream against the rapid current. Steadily we continued on our way, and after several hours we left the main stream and turned up into the river Tuto, a tributary of the Baram. The banks were everywhere deep in water, and we were glad when, just before nightfall, we arrived at a huge Long House. However, this we found to be almost deserted, except for four or five natives, as the greater number of the population, which numbered several hundreds, were away in the fields planting rice, in which occupation they had been severely handicapped by the weather. Fortunately, for the next few days conditions improved, and the river had already begun to fall when we set off at dawn the following day. We had heard that the chieftain, Tama Tinggan Maling, was only a few hours away upstream, and he was already expecting us by the time we arrived. He proved to be a most charming and friendly individual. He was clad in the usual Malay sarong with a white jacket rather like a fatigue uniform coat. He suffered from a deformity in the shape of a twisted leg, but in spite of this he seemed to be able to get along as well as anyone else. He enjoyed the reputation of being one of the best and most honest of the Penghulus throughout the whole of the Baram Valley, and certainly he showed himself most friendly to me, and agreeable to my plans. Like most of the natives of Borneo, he was very light-skinned, and it was difficult to think of him as anything but a pleasant stranger, whom afterwards I came to look on as a friend.

It was fortunate for us that we had come across the Penghulu for, during the night, the flood had gone down so quickly that the motor-boat was unable to proceed more than half a day's journey upstream. However, Tama Tinggan Maling arranged for boats to carry all my stores and equipment, which included a wireless and theodolite. The night of the 8th was spent at a temporary house which had been erected for the rice

planters, and the following day we continued our journey upstream, collecting *en route* natives who, urged by their chief, were soon willing to act as bearers for the attempt on Mulu.

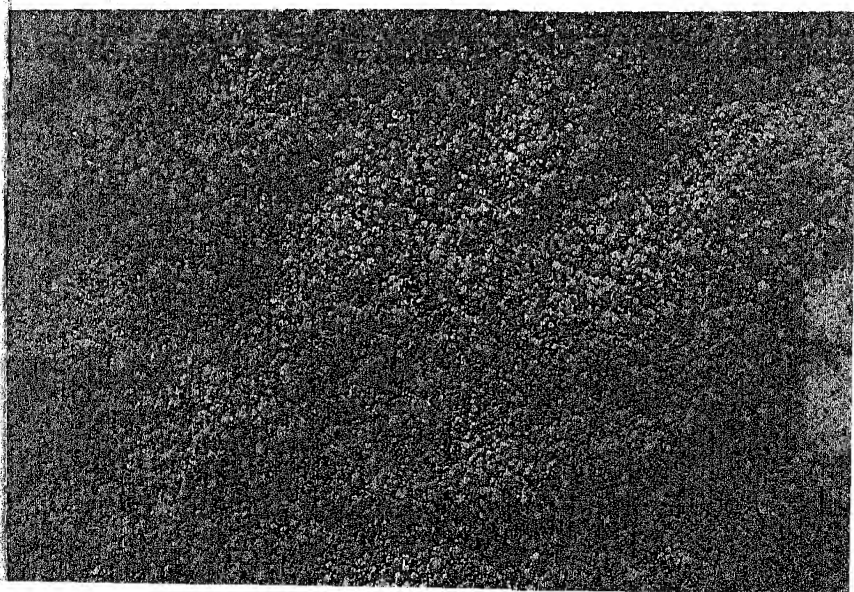
The Penghulu was one of those genuinely kind and enthusiastic people who devote all their resources and energies to helping anyone who comes their way. He had now thoroughly entered into the spirit of making an attempt on Mulu, only lamenting that his deformed leg prevented him from joining the expedition. However, he did all he could for us, giving it as his opinion that unless the last unknown climb above the main ridge was very precipitous, it should be possible to reach the summit in six days.

We finally arrived at a dilapidated and empty wooden fort which the Sarawak Government had built in the headwaters of the Tuto River at Long Malinau as a rallying-point and place of meeting with the wild wood dwellers, the Punans. Here I established my headquarters, set up the wireless and drove in stakes for my theodolite in the hope of getting a clear night for star observations in order to fix the latitude and longitude. Unfortunately the weather was unfavourable for this, but the wireless which I had brought for the purpose of obtaining time-signals was of enthralling interest to the groups of natives who, as night fell, came in from the surrounding district. For the first time they heard the voices of strange countries; an orchestra playing music in Bandung in Java, a Soviet broadcaster engaged on an interminable English propaganda talk, while an American announcer from the Philippines was telling the world how the United States of America was electing its new Rajah. The natives who acknowledged only the sovereignty of the white Rajah Brooke, and had only just heard of the even mightier Rajah King of England, were astonished to learn of the existence of yet another country of Tuans with a population a thousand times



"As dwarfs in the
great forest."

Aerial view of the forest.



greater than that of their river. I explained as best I could that this country was far, far away, even two hundred days' journey in one of their fast river canoes if the huge waves of the open sea of which they had heard tell did not swamp them: and here was one of the Tuans himself speaking through a strange metal instrument which burnt them if they touched certain parts of it. "Ah-dee!" they all said, and queued up for the doubtful pleasure of receiving a shock from the high-tension batteries.

The 10th of November was spent in preparation for the climb, and I paid a visit to some enormous caves on the side of a precipitous limestone hill whose cliffs rose to a height of nearly 2000 feet. These caves, which have never been explored to their limits, were quite remarkable, consisting as they did of a network which stretched far into the interior of the hill. The perpendicular walls of the hill were so sheer that a climb to the summit might in imagination bring one to the plateau where dwelt the denizens of Conan Doyle's *Lost World*. Nearby was a hot spring with a temperature that registered over 110°, full of sulphurous smelling mud of an even higher temperature. All that day and evening natives continued to arrive, and finally, on 11th November, I said "Good-bye" to the Penghulu, and with twenty natives, including Tama Lilong the original pathfinder, we set off up the river Malinau in five boat-loads.

To quote from the official report :

"The day was cloudy but warm, and the 10 a.m. temperature in the shade was 82°. General direction of the march, north-east. After an hour's paddle we left the main stream and continued up the Malinau Pukko, bearing in a more easterly direction. Just before leaving the main stream we passed some caves high up in a limestone cliff. For the first part of the journey we had glimpses of the whole of the Mulu range though the mountain-tops were buried deep in cloud. The stream became narrow, and in

places fallen trees and overhanging branches and trailing rattans blocked our way. Shortly before noon we passed some huge limestone cliffs with a noisy waterfall dropping sheer from a great height, and it was just near this point that we decided to leave the boats. The threat of heavy rain decided us to make camp, and a couple of sulaps¹ were run up with great rapidity. During the evening there was the usual tropical downpour, and the temperature dropped well below 80°. Later on the weather cleared up, and some of the men whom I had sent out with guns shot two red monkeys, apparently a welcome addition to their meal of rice. Unfortunately there was no fish of an edible size in this stream."

In spite of all exhortations for an early start it was not until after eight o'clock the following morning that the men had finally packed up all the paraphernalia, and the loads had been arranged. An hour's march through comparatively open primary forest brought us out again on to the same stream near the foot of the precipitous Gunong Api.²

This hill, whose limestone cliffs were apparently unscaleable, is reputed among the natives to be volcanic, and some of them claim to have seen fire and smoke there as recently as twenty years ago. This belief probably arose from the presence of a hot spring whose steam might conceivably have been taken for smoke, while the fire could easily have been supplied by native imagination.

A little farther on as we followed the course of the stream along the foot of the cliffs we felt a warm flow of water around our feet, but no steam was observed issuing from any of the rocks up the mountain-side. We finally left the stream for good and soon reached the first rising ground which seemed to be the boundary to an area populated by thousands of leeches. These pests seem to inject some anæsthetic into the flesh where they

¹ Rough shelters.

² Translated literally, this means Mountain of Fire.

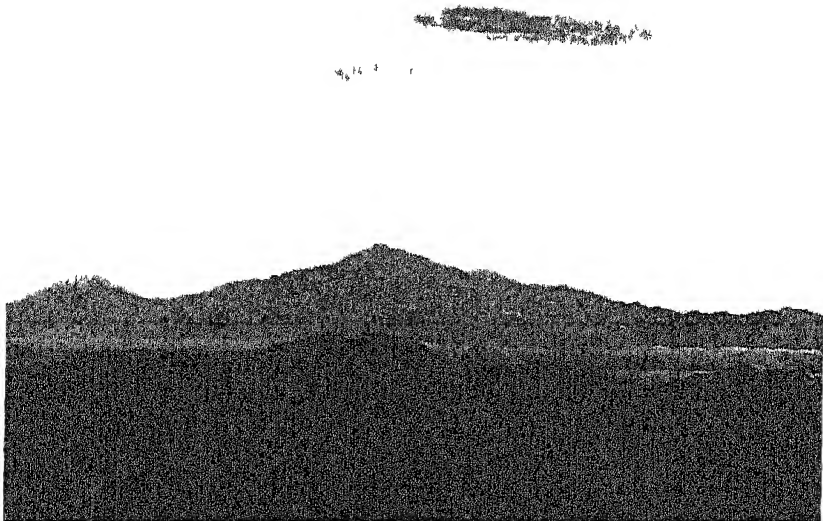
take their hold, and so they remain unnoticed till the blood gradually soaks through the stocking under which they have burrowed and their bloated bodies are revealed. They seem capable of penetrating anything, and I have even seen a leech half-way through a thick puttee.¹ I found two different techniques which helped to avoid trouble of this sort. In the case of the first method the main principle is to keep the legs completely bare, with no stockings or covering on the ankle so that there is no possible concealment for the leech. With a sharp-eyed native walking close behind, every leech is observed almost as soon as it takes its hold, and it is then easy to remove before it has done any harm. The other method was more psychological, the main principle being to prevent the leech getting through at all. To this end I used to wear a pair of socks under my stockings, the theory being that when the leech failed to get through to the flesh after the first layer he would assume that there was nothing worth looking for and would climb up the leg to find a more promising entry. Above the stockings I used to wear thin drill breeches, tightly lashed at the knee, so that the leech could not squirm underneath. It would thus be forced to continue on up the thigh, by which time there was a good chance of its being seen and dealt with. This dress certainly afforded a fairly effective protection, but nevertheless occasional leeches used to find a way in and were only found at night when I undressed. Most important was not to pull a leech away roughly since they are inclined to leave a portion of themselves in the wound, and this adds greatly to the danger of a bite becoming poisoned. It is, however, quite easy to make a leech lose its hold not by pulling at it, but by putting a little salt on its tail or by squeezing tobacco-juice over it. I used to

¹ There is another less usual species with a yellow stripe down its back which is more troublesome, but as it causes pain when it first bites it is soon noticed.

carry some very strong chewing tobacco in my pocket, and as during the ascent of Mulu my clothes were permanently soaked, it was only necessary to take out the tobacco and squeeze it over the unfortunate leech.

We had only climbed a short distance when it came on to rain heavily. We were thoroughly drenched and the men were shivering with cold, so a hasty camp was pitched by the side of a rocky little stream in which we were able to bathe and refresh ourselves. We had now reached a height of seven hundred feet, and we decided to leave a small depot of rice in this camp for use on our return journey. The food question now began to occupy my attention, and indeed it was the most serious problem of the whole climb. The amount the natives could carry away from the rivers was strictly limited, and it proved to be impossible to put them on half rations. The only apparent way to get them to eat less was to march all day with only short intervals for rest so that there was not time for more than two meals instead of the more usual three. Unfortunately this theory proved to have little in common with practical economics.

On our third day out we began climbing in earnest. The heavy loads caused considerable delay, and our progress was not very fast. But, apart from the steepness, the going was comparatively good, for the forest consisted of big timber rising to heights of over eighty feet, and there was very little undergrowth. After reaching a height of about a thousand feet, leeches ceased to abound in such great numbers. By the time we had reached a height of 3300 feet it was definitely colder, and while we were waiting for the bearers to come up, heavy rain started to fall. It was decided to make camp at once, chiefly because we were within reach of a reasonable water supply, and we might have to make a very long march if we continued on until we found another source of water. Even so, there was only a tiny trickle about five minutes' walk away down the mountain-side,



Mt. Mulu from the summit ridge of Dulit.

The great Baram river.



but this was adequate for our drinking purposes. After the evening meal, Sergeant Dian and two of the men set out to hunt for pig, but though they made their way as far as the first peak of Mulu, at a height of over five thousand feet, they did not succeed in shooting anything.

It rained and thundered during the night, and everything was soaking, including my clothes, when we set out early the following morning, 14th November, the fourth day since we left Long Malinau. At a height of about 3800 feet, the moss began to appear on the trees, and at about 4000 feet the typical moss forest had set in. In consequence, the path became more difficult, and it was soon necessary to traverse from side to side across the ridge owing to its increased steepness.

We reached the first peak of Mulu, which is approximately 5100 feet high, before noon and sat down to await the porters. During this delay Dian amused us by solemnly planting three orange-pips from the Borneo specimens of oranges which I was eating. So future travellers will know whom to thank if they find something ready to quench their thirst at the end of this rather arduous climb. On the other side of the peak the trail rapidly descended, and only slow progress was made owing to the slippery and difficult nature of the moss forest. It was now necessary to have two men in front cutting a way. Rocks began to appear, and deep mud pools, some of them with a kind of moss floating on the surface. Probably it was these which led to the report of impassable swamps. But in no place was the mud more than knee-deep, and it must be remembered that this was the height of the rainy season. Nevertheless it made the going extremely slow and unpleasant.

The drop gradually eased off, and as we continued our march we passed the tracks of a honey-bear. The forest no longer consisted of the giants of the densely wooded valleys, for the average height of the trees was not above thirty feet. It was much colder, the tempera-

ture being that of a cool spring day in England, while the clinging damp permeated everything. Our food supplies were augmented by shooting a wild pig and a kind of jungle fowl. Late in the afternoon we made camp at a height of just under 5000 feet, in a cold, wet mist.

The fifth day, 15th November, was lovely and clear, the sun gradually fought down the mist, and by the time we started on our march the fantastic moss forest looked quite cheerful. A few hours of rapid marching brought us to the second peak at a height of 5800 feet. A wonderful view spread itself out to the west, and a bright sun made everything warm and pleasant. The usual rain set in, but it cleared later, and I sent most of the men out to collect plants and birds. We could see the path we had followed through the forest up to the south-western shoulder of Mulu, and then along a semicircular ridge connecting the first and second peaks. Pitcher plants and rhododendrons were abundant, and moss covered everything. On this peak, where we made our camp, the trees were for the most part under twelve feet, and from my shelter I could see straight out across the plains.

Towards evening it grew very cold, and just before sunset the headman begged a little biscuit, whisky, butter, milk and two eggs with which to make a propitiatory sacrifice before completing the first ascent to the summit. Tama Lilong carried out the ceremony, which consisted of improvised incantations murmured before some roughly carved bits of wood. A motley crowd in their borrowed pullovers and my shirts, the natives did not seem to take it very seriously, and were far keener to help me take photographs of it before it grew too dark. The scene was one of the most bizarre and wonderful I have ever seen. The highest peak stood out black against the eastern sky, while to the west an exquisite sunset dissolved into a mixture of colours

which is inconceivable to anyone who has never visited the tropics. To the west, fresh peaks stood out against the setting sun, and nearly 6000 feet below us the river Tuto glistened. That evening I hung out a couple of lamps as I had promised the Penghulu to show that we had reached the main ridge. The next morning, however, we were all rather subdued after a cold, uncomfortable night which had damped the exaltation of the previous evening.

Our sixth day's march took us along an even worse trail than before. We had come out on top of a slightly higher ridge, at a height of 6000 feet, where the moss was thinner and the stunted trees closely resembled bushes. Strangely-shaped pitcher plants were plentiful, and some of them contained living mosquito larvæ. We plunged down into the deep moss forest which became thicker and thicker until in places we had to cut our way through walls several feet deep, and once had to crawl on hands and knees through a tunnel of moss. It was fantastic, and resembled a drop-scene in the fairy forest at a pantomime. Every tree was festooned with trailing moss, and its roots were buried deep under the squelchy vegetation.

We finally halted at the foot of the main peak in a small valley. This was as far as any native had been, and I decided to spend the following day exploring a way up to the summit. Though we were now at a height of 6000 feet, the forest here consisted of trees of over thirty feet, but it was a sheltered corner of the mountain-side. Dwarf bamboo was abundant, and the forest floor was extremely treacherous owing to the thick covering of moss and rotten vegetation. Ten minutes away downhill was a small trickle of water which had to serve as our water supply. The whole day we had been marching through thick cloud, and in the afternoon heavy rain came on which continued without ceasing all night. The cold was so bad that many of the

men scarcely slept, but remained awake tending the fire they had built within their shelter.

The rain cleared off towards morning, and I sent Tama Lilong and several men ahead to start the path-making which was to lead up to the summit, and I followed later. The going was very steep, and the forest floor had become dangerous owing to the crevassed surface. The mountain-side seemed almost to disappear under the all-enveloping moss forest. It was impossible to tell whether we were walking on actual land, or over the tops of century-old forest, buried deep. Sometimes the moss was stretched across the tops of decayed trees, and hung out over the side of the mountain so that in one place our path led right across a precipice, with a sheer drop hundreds of feet below. I carried a short staff so that in the event of falling through a moss bridge, it was certain to catch in the muddle of branches and roots. I caught up the men, and we were now in a small fire clearing at a height of 7000 feet. These fire clearings are interesting as no reference has been made to them elsewhere, though they must exist on the tops of other mountains of comparable height in Malaya. The conclusion is that the hot sun of the drier season, beating down on the stunted vegetation of the more exposed ridges, by some means sets fire to it. Dry moss is very inflammable, and as a result there are small clearings which show traces of blackened roots. In some places the ground is covered with a kind of lichen.

We were now in full view of the peak which could be seen protruding through a tangled mass of brightly coloured vegetation, with a crown of scarlet blossoming rhododendrons round the summit. The intervening mountain-side was covered with densely massed bushes, and was a riot of red, yellow and green leaves, interspersed with many coloured flowers. To our joy no rock-faces were visible in the direct line of advance, and it appeared to be an easy, if steep, climb to our final

goal. I then decided to camp the night on the top. The men refused to agree to this at first, but after a lot of argument I finally despatched some of the party to fetch supplies, while three men remained to cut a way to the peak. It is a well-known fact that if a Borneo native decides not to do a thing, nothing will make him do it. As they will only take orders from their headman, it was very useful to have Dian who, though educated, and a convert to Mahomet, was easily influential enough. They were all suffering greatly from the cold, so their dissatisfaction was not unreasonable.

A little later the summit disappeared, blotted out by a cloud, and it came on to rain. We continued to cut our way, and after three hours' hard work the last 600 or 700 feet were successfully accomplished. This lengthy operation was accounted for by the extreme denseness of the bushes and the complete absence of a secure foothold from which the leaders could hack at the matted vegetation. Just below the top the mountain-side became quite sheer, and we had to scramble up by clinging on to the rotten branches and roots. It was really like climbing up a tree, and here again a staff was useful. Later the descent was accomplished with the aid of a rattan rope. We had only about forty feet of this perpendicular climbing, though there were other patches which were exceedingly steep. Finally we reached a small plateau covered with scarlet rhododendrons, and taking this to be the summit because of the bad visibility caused by a cloud, we decided to make our final camp (7) in a convenient fire clearing at a height of approximately 7900 feet.

A little later a cold, heavy rain began to fall, accompanied by bitter gusts of wind. The small fire which we had lighted was hastily placed underneath a stunted bush while the men cowered under dwarf trees, all of them shivering violently. Sergeant Dian got a kettle on the spluttering fire, and it was in this rather miserable

state that the supply-party found us. I was rather afraid that they had been unable to get their heavy loads up the perpendicular walls of moss and branches. We found it impossible to build a proper shelter as there was no large enough wood, so instead we tied the native mats which are used for roofing to small stakes stuck into the ground, and crawled under these for shelter. Neither was there any dry firewood, for the branches were not big enough to split and to find a dry core within. But one advantage the rain brought us was a water supply which we used by scraping the water out of puddles on the ground.

All our clothes were soaked, and it was impossible to dry anything. A hot drink of cocoa lashed with whisky cheered up the men, all of whom were shivering with cold. Unfortunately I had only brought one precious bottle and a flask of brandy which was not nearly enough to supply the men, due to my belief when I left Marudi that it would be impossible to climb Mulu at this, the rainiest season of the year. I had not even brought clothes enough for myself, let alone restoratives. That evening the standard remark, "Sejok, Tuan," seemed unpleasantly true.

The rain gradually eased off, and when at 2 a.m. I visited the thermometer which I had hung a short distance from the clearing, the night was clearer and the stars sharper than I had previously seen. The thermometer showed a figure of 54° , which seemed bitterly cold to our limbs, accustomed as we were to the sticky heat of the valleys. It must be remembered, too, that none of the men had anything more than a thin shirt besides their loin-cloth, and some of them only the latter. The majority of them had never before in their lives experienced a temperature below 70° . A violent wind blew in gusts, and it seemed to get colder towards morning when heavy rain again fell, soaking the clothes and blankets that had survived so far. However, shortly

after seven the sun reappeared, warming everything, and cheering us as the temperature rose. I realised that it would be impossible to stay another night on the peak as I had hoped. The food shortage had now become serious, for there were only two more meals of rice left for the men, and my two reserve tins of sausage both turned out to be bad.

We now had a wonderful view of the mountains of Borneo standing out through the clouds and mists of early morning. To the north I could see sheer rock-faces which marked lofty, unmapped mountain ranges, and I caught a glimpse of the sea towards Labuan. For the first time, too, I saw clearly the precipitous mass of Batu Melerat, a mountain with a height of about 5500 feet, which hitherto has failed to appear in the right part of the map, or even under its own name. To the east I tried to pick out Mount Kalulong, and wondered whether Moore had succeeded in reaching the top, or whether he was still struggling to reach summit over eighty miles away from where I stood. Some peaks appeared away up in the K'labit country, but before I had time to take any compass bearings the mists and clouds rolled down and shut us in again. However, it was clear long enough as we looked over the tops of the dwarf trees for us to make a very disappointing discovery. I saw that the tiny plateau on which we had camped was only one end of the high ridge on which, across the dense bushes of the intervening ridges towards the east, several peaks were visible. One of these was slightly higher than the one on which we had spent the night. With little more than a full day's food left, we were already seven days from home and five days from the rice depot. I hoped to increase greatly our rate of travel on the return journey, but it was difficult to decide whether we could really afford to spend another day (the 8th) hacking our way through the heart-breaking jungle. I had no idea how far we might have

to descend in order to climb up again the other side. I could still claim that we had reached the summit of Mulu, if not the highest point on the ramifying ridges of that summit. On the other hand, it looked as if the fire clearings might have formed a series of open spaces which could easily be linked up into a reasonable trail. So I decided to send back most of the men who had spent the night on the summit in spite of being given permission to return to the camp below. Then, with Dian and four men, I set off.

My hopes about the path were fully realised. The burning sun had done its work in partially clearing a trail for us. We cut our way to the next peak, and then on again, until after little more than an hour's work we reached the top peak at 9.40 a.m. on 18th November 1932, the eighth day of the expedition. With the permission of the Rajah, it was later decided that while retaining the native name of Mulu for the whole mountain range, this, the topmost peak, which is probably the highest point in all Sarawak, should be called Oxford Peak.

Due east on the same ridge another small peak of equal height was visible, but we were now apparently on quite the highest point of the Mulu range, 7950 feet by my aneroid.

A small piece of wood was fixed horizontally across the trunk of a small tree, in the shape of a cross, four to five feet from the ground, and a bottle containing a brief account of the ascent, with names and dates was placed in a mound of mossy earth.

The actual peak consisted of a small fire clearing with the usual rhododendron bushes and dwarf trees, though there was one tree about seven feet high on it. There would have been a clear view to the north and south but for the heavy cloud which gradually turned into a chilling rain. After about an hour's wait we set out on the return journey and reached the previous



A pool in the moss forest, an enchanted place like a scene from a pantomime, where everything is covered deep in tussocks and cushions of moss.

night's camp and began the descent. The men who had gone in front had fixed rattan creepers as safety-ropes at all steep places, and with this help we made a rapid return to the camp where the men were awaiting us.

Quoting from my report :

" On Saturday, 19th November, we set out on our return journey. There was the usual difficulty of making an early start which was unfortunate, as I had hoped, now that the men's loads were lighter, to compress four days' march into one, and reach our depot of rice in one journey.

" In order to make a collection of plants, I chose two men who were to carry empty baskets on their backs. One was to act as a walking repository along the main ridge from below the summit to the second main peak at a general height of 6000 to 5800 feet. As soon as we reached Peak 2 the other man took his place, and a fresh collection was made from about 5700 feet down to the lowest peak at 5100 feet, including the small dip in between. During the previous day a small collection had been made during the descent from the summit. According to this method every single flowering plant, moss or lichen, was picked and passed up or down the line of marchers to either Sergeant Dian or myself, who discarded what had already been collected and placed in the basket what was fresh. By this means we managed to make a fairly thorough collection without delaying the march.

" Following our former trail, two and a half hours' marching brought us to the second main peak, Camp 5, at a height of 5800 feet.

" A brief halt and then a rapid descent brought us to Camp 4 by 1 p.m. where our advance party had to wait over half an hour for the slower coolies to catch up. The usual heavy midday rain had come on, and it was very cold. The noise of running water was everywhere. The heavy swamp mud was thicker than it was during the ascent, and when we had mounted again to the lowest peak, 5100 feet high at 2.30 p.m., the men were exceedingly weary. A brief halt and then another rapid descent brought us at 3.20 p.m. to Camp 3, at a height of 3300 feet, where the state of the men compelled a halt for the night. The sun now shone out, and the warmer temperature made everything more cheerful.

"The lure of rice waiting at Camp 2 drove the men to make the earliest start of the whole expedition, and we reached our depot by 9.30, where three men who had been sent ahead had the coolies' meal already cooked. Camp 2 was by a stream, and so we all had our first wash for over a week. We were now in the leech area, and they swarmed all over us until we were off the mountain-side.

"We reached our boats by 1 p.m., and, after some delay owing to freshly fallen trunks, we arrived back at the fort-house at Long Malinau in the afternoon of 30th November, the tenth day from setting out."

Thus the ascent had taken us seven and a half days, and the descent two and a half.

A friendly welcome awaited us, and our friends amongst the natives all came to the old fort, bringing with them large supplies of rice spirit, chickens and rice. It was pleasant to be back in the comparative civilisation at Long Malinau, but, above all, we were glad once again to feel warm after our chilly nights on Mulu.

EV: KALULONG

A TRIBUTE

TO

A. W. MOORE

POINT him at a peak ; bet him he couldn't reach the top in four hours (half the time that you thought possible), and off he would zoom, small, nearly as thick as high, ordinary hair, large eyes and a tight sort of mouth ; he'd be back in five hours, with a couple of Punans steadily following him, but tired—which is saying more than a lot, for Punans.

That's why we all called him Everest, this, our friend Moore, who is dead. It is no sentimental aftertruth to say that he was the most likeable and explorable personality of any, a typical mixture of Mungo Park and Hyde Park Corner, Colonel Blimp and Captain Scott—the mixture which makes Noel Coward laugh, cry, shout and blush all at once.

From the angle of this expedition, Moore's main achievement was his ascent of Mount Kalulong. From his diary and the *Geographical Journal* (thanks to Royal Geographical Society) we piece together this short account, and with it each one and all of us hope that for Ev's sake there are mountains in death.

T. H.

EV : KALULONG

WITH sixty native Borneans, Banks and Moore left our Base Camp on October 23, taking six days to get up the Dapoi River, which was partly in flood. Thence they carried on up a small rocky tributary stream in the headwaters—the Tehani. The canoes were dragged up this, filled with supplies, and abandoned when the water became too consistently shallow and swift. A two-day reconnaissance was then made, without any sight or sign of the mountain as result. Dense jungle and cloud formations, and the absence of any human beings over a great expanse of this hinterland, account for this difficulty in locating a whole mountain range.

By November 2, a camp had been made on a located ridge at 1750 feet. Here and higher, water was very scarce. A small peak was now located by Moore, and then a path which they believed had been used by a Dyak hunter following up a rhinoceros some months before—the Dyaks will hunt weeks after one rhino, for the horn is of great value to the Chinese, who use it as an aphrodisiac. This path stopped at 2500 feet. The natives expressed no enthusiasm for going any farther, saw a bad-omen bird, declared that there was a lake beside which ghosts dwelt in the saddle between the twin peaks of the mountain. After much delay and suitable sacrifices, they agreed to carry on.

Next day, Moore, with a small party, succeeded in reaching the smaller peak, and obtained a magnificent

view over into the Baram River system and across the Dulit range, taking bearings, etc. After a day's rest, camp was made at 3000 feet, in dense jungle, from which the party's two Malay collectors made valuable bird, mammal, insect and geological collections. The small peak was climbed again, but this time no view was obtained. Now, to quote from Moore's diary :

“ A party had gone out to-day (November 5) intending to find a route up the higher peak. They were to spend the night in another locality (on the opposite side of Kalulong to our previous camp). On November 6 I went with another party to try and ascend the higher peak. We kept at a height of 3000 feet for half an hour, passing the smaller peak on our right side. Then we began to ascend towards a saddle which was situate between the two peaks. Our first view of the high peak was disappointing, since straight in front of us stood a sheer precipice of wall, probably 150 feet high. At this time we were just below this rock face (about 3500 feet), so we were able to alter our direction without wasting too much time. We kept a sharp look out for places where there was vegetation—this made climbing easier, as the branches and roots provided good hand and foot holds. The pace was slow ; we repeatedly came upon rock faces which had to be avoided, and working right round them took time ; neither were we gaining much height. At one point we came to a steep slope of scree which appeared to run from about 4500 to below 3000 feet. We had to walk and crawl up this, taking great



"Ev" with two Kenyahs

Two Punans, murderous looking but really gentle. The man with the cigarette tin tops earned the name of "Speedway."

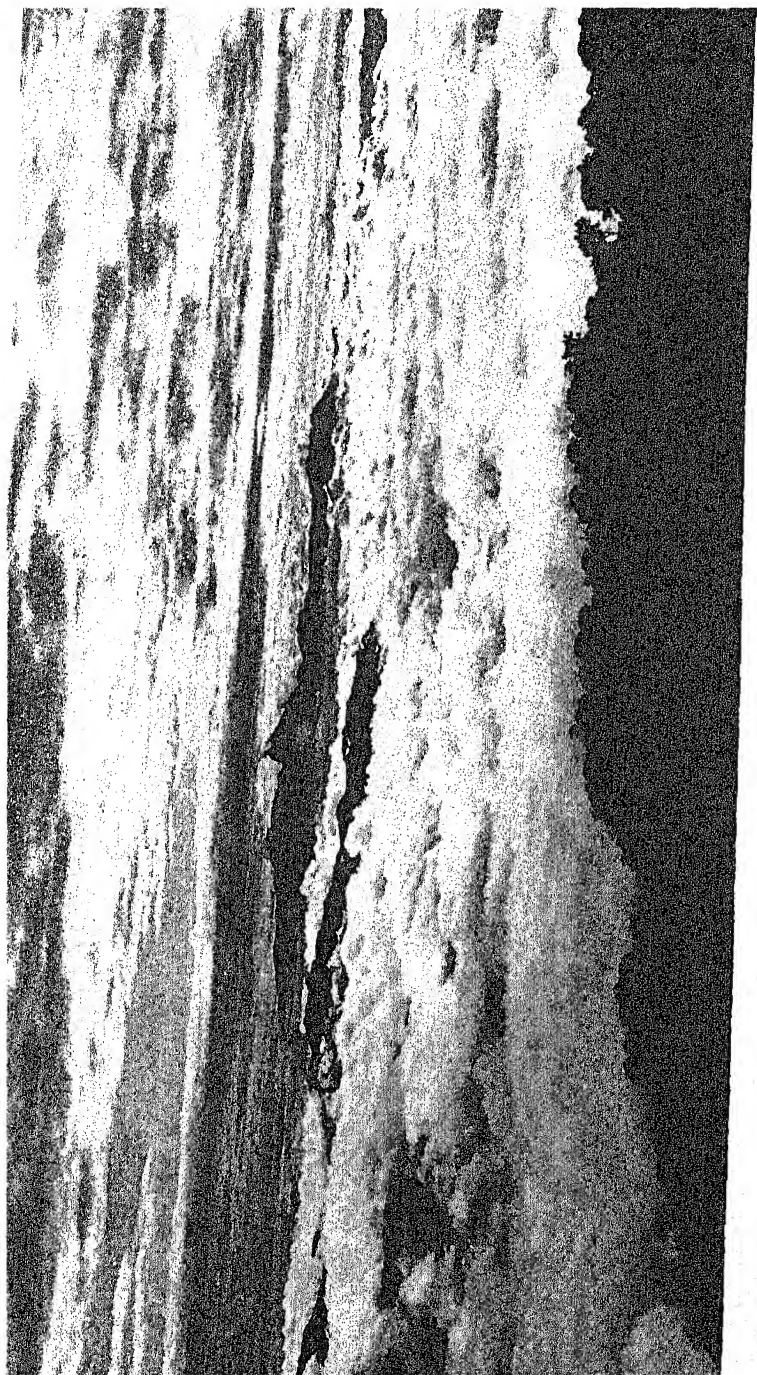


care not to dislodge the large loose rock fragments. As it was, one large fragment was dislodged, missing the native headman by a fraction of an inch. At this height the trees become smaller, the undergrowth thick and heavy, with many bamboos. The man in front had a strenuous time cutting a way through the undergrowth. A little farther on we had to cross a steep, sloping rock face, which was about 9 feet wide, running vertically down the mountain-side, making a rift between the undergrowth. Once across this we climbed through the undergrowth up to the bottom of a very large rock face; we made a route alongside the bottom of this face until it ended and gave place to 'moss forest.' This moss forest was thick and dwarfed, the branches very twisted. The exposed roots afforded good aids for climbing. Another rock face confronted us, but we managed to get over the top side of it by going back a little distance and working up the edge in the undergrowth. Once in moss forest again we began climbing steadily and soon got a view of the larger peak looming ahead, about 600 feet above us.

"Between the two peaks of Kalulong is a saddle; at that moment we were at the bottom of this, midway between the two peaks and in line with them. The native headman very wisely sent a small party to make a path to the top of the smaller peak, knowing that if we could get on to that peak we would be able to use our previous path down to the 3000-foot camp—thus saving us some five hours. The rest of us directed our efforts towards the higher peak. We climbed another 100 feet

of steep moss forest, then came face to face with yet another rock precipice. We took stock of the surrounding localities and saw another way up to the summit. By going back some distance we were able to get into the moss forest again. While climbing in this we heard frantic shouting from the party we had sent towards the other peak. They had seen some men on the top of the big peak—they must obviously be the party whom we had sent out the previous day, and they had succeeded in getting to the summit. Their path must be somewhere near us and it was our job to find it. We soon ran right on to it, and after twenty minutes' steep climbing through moss forest we stood on the higher peak of Kalulong. The other party had not been up long before us. The visibility had been bad, and both peaks in cloud; they had climbed the smaller peak in mistake for the larger one—a mistake any one could have made very easily. After this they had climbed the larger peak successfully arriving there a few minutes before us. By this time a path had been made successfully up to the smaller peak. We descended into the dip, up this path to the peak and down to our 3000-foot camp in two hours."

They then came down as quickly as possible, for food was very low. They got back to Base Camp on November 11. A longer trip would have been impossible, as the party could not carry sufficient rice. Such a lightning raid was essential and, even so, cost £60. Though the mountain is one of the conspicuous features of the Borneo landscape, it had not been climbed, or indeed approached,



You could see from the high camp for more than a hundred miles, even beyond the twin peaks of Kalulong, standing as an island in a sea of white cloud.

before by whites. The rest of the story is best told by the obituary, published in the *Geographical Journal*, by Ev's closest friend and fellow-member of two expeditions, Eddie Shackleton :

“ At the conclusion of this expedition, he returned to Oxford, where he took a degree in Forestry. To one of his adventurous spirit a further journey into unexplored country was almost a necessity, and in July 1934 he sailed with the Oxford University Expedition to Ellesmere Land. On this expedition he served in the capacity of biologist and photographer, and he was chosen with Sergeant Stallworthy, Royal Canadian Mounted Police, to take part in the journey to Grant Land. After three hundred miles of hard travel, mainly over Polar pack-ice, the party finally reached Lake Hazen in Grant Land. From there Moore pushed on with one Eskimo through the United States range up on to the unknown ice-cap of Grant Land. At last, with tired and hungry dogs, he reached the summit of a high mountain in approximately latitude 82°25'. When writing of this he said, ‘ Beyond us stretched a great mountain range, and several of the summits must have reached a height of 10,000 feet or more ; on both flanks also were a multitude of mountains smaller than those to the north of us, and these further ranges stretched as far as the eye could see.’ He christened the new mountains ‘ British Empire Range,’ and the peak on which he stood ‘ Mount Oxford.’

“ In 1936 Moore was given a Government appointment in West Africa, as a result of which he returned to Oxford for a further course of forestry duties. During the

Easter vacation he went to Switzerland for a fortnight's ski-ing, and there caught a chill which led to his death at the age of twenty-seven.

“ He was a very keen Territorial ; but there is no doubt that exploration was his real calling, for his determination to reach his objective at all costs carried him through to success about which he was always particularly modest—a modesty which sometimes tended to keep him in the background ; but those who knew him well will feel that the world has lost a brave and lovable character.”

APPENDICES

I. LIST OF EXPEDITION PUBLICATIONS

1. HARRISSON, T. H. (1933): "The Oxford University Expedition to Sarawak, 1932." *Geographical Journal*, vol. 82, pp. 385-410.
2. RICHARDS, P. W. (1936): "Ecological Observations on the Rain Forest of Mount Dulit, Sarawak," Parts I. and II. *Journal of Ecology*, vol. 24, pp. 1-37 and 340-60.
3. LAM, H. J., KOSTER, J. H., and WARBURG, E. F. (1936): "Contributions to the Flora of Borneo and other Malay Islands; V. New and Noteworthy Species from Sarawak, collected by the Oxford University Expedition, 1932." *Kew Bulletin of Miscellaneous Information*, No. 1, pp. 17-21. (Burseraceae, Compositae, Sapotaceae and Cupuliferae.)
4. UTTIEN, H. (1935): "The Cyperaceae of the Oxford University Expedition to Sarawak in 1932." *Recueil des Travaux botaniques néerlandais*, vol. 32, pp. 193-202.
5. SYMINGTON, C. F. (1934): "The Dipterocarpaceae of the Oxford University Expedition to Sarawak in 1932." *Gardens' Bulletin, Straits Settlements*, vol. 8, pp. 1-7.
6. DANSER, B. H. (1934): "The Loranthaceae of the Oxford University Expedition to Sarawak in 1932." *Recueil des Travaux botanique néerlandais*, vol. 31, pp. 237-47.
7. AIRY-SHAW, H. K. (1937): "Species novae vel minus cognitae." *Hooker's Icones Plantarum*, Tabulae 3333-4 (Meliaceae).
8. SYNGE, P. M. (1936): "Collecting *Nepenthes* in Borneo." *New Flora and Silva*, vol. 6, pp. 221-227.
9. CARR, C. E. (1935): "Some Malayan Orchids, V." *Gardens' Bulletin, Straits Settlements*, vol. 8, pp. 69-129.
10. AIRY-SHAW, H. K. (1935): "Studies in the Ericales: II. A new Genus of Vaccinioideae from Borneo." *Kew Bulletin of Miscellaneous Information*, No. 3, pp. 150-156.
11. DIXON, H. N. (1935): "A Contribution to the Moss Flora of Borneo." *Journal of the Linnean Society, Botany*, vol. 50, pp. 57-140.
12. HARRISSON, T. H., and HARTLEY, C. H. (1934): "Descriptions of

- New Races of Birds from Mountain Areas in Sarawak." *Bulletin of the British Ornithologists' Club*, vol. 54, pp. 148-160.
13. KLEINE, R. (1937): "Results of the Oxford University Expedition to Sarawak (Borneo), 1932." *Annals and Magazine of Natural History*, ser. 10, vol. 20, pp. 505-509.
 14. BREUNING, S. (1936): "Results of the Oxford University Expedition to Borneo, 1932." A new species of *Dihammus* Thoms. (Coleoptera, Cerambycidae.) *Entomologists' Monthly Magazine*, vol. 72, p. 109.
 15. BREUNING, S. (1937): "Results of the Oxford University Expedition to Sarawak (Borneo), 1932." Three new species of *Lamiinae* (Coleoptera, Cerambycidae). *Entomologists' Monthly Magazine*, vol. 73, pp. 57-58.
 16. HINTON, H. E. (1936): "Results of the Oxford University Expedition to Borneo, 1932." Dryopidae (Coleoptera), Part I. *Annals and Magazine of Natural History*, ser. 10, vol. 18, pp. 89-109.
 17. HINTON, H. E. (1936): "Results of the Oxford University Expedition to Borneo, 1932." Dryopidae (Coleoptera), Part II. *Annals and Magazine of Natural History*, ser. 10, vol. 18, pp. 204-224.
 18. OCHS, G. (1937): "Results of the Oxford University Expedition to Sarawak (Borneo), 1932." Gyriniden (Coleoptera). *Annals and Magazine of Natural History*, ser. 10, vol. 19, pp. 596-617.
 19. DE COOMAN, A. (1937): "Results of the Oxford University Expedition to Borneo, 1932." Description de *Nicotikis hobbyi*, sp. n. (Col. Histeridae). *Proceedings of the Royal Entomological Society of London*, ser. B, vol. 6, pp. 29-30.
 20. PIC, M. (1937): "Results of the Oxford University Expedition to Borneo, 1932." Nouveaux Coléoptères (Malacodermata et Anobiidae). *Proceedings of the Royal Entomological Society of London*, ser. B, vol. 6, pp. 52-53.
 21. BERNHAUER, M. (1936): "Results of the Oxford University Expedition to Borneo, 1932." Neue Staphyliniden (Coleoptera). *Proceedings of the Royal Entomological Society of London*, ser. B, vol. 5, pp. 214-215.
 22. EDWARDS, F. W. (1935): "Results of the Oxford University Expedition to Borneo, 1932." Two new species of *Megarhinus* (Diptera, Culicidae). *Annals and Magazine of Natural History*, ser. 10, vol. 15, pp. 579-581.
 23. FUNKHOUSER, W. D. (1937): "Three New Membracidae from Borneo." *Entomologists' Monthly Magazine*, vol. 73, pp. 100-102.

24. PARKER, J. B. (1937): "Results of the Oxford University Expedition to Sarawak (Borneo), 1932." *Bembecinae* (Hymenoptera). *Entomologists' Monthly Magazine*, vol. 73, pp. 129-133.
25. SCHWARZ, H. F. (1937): "Results of the Oxford University Sarawak (Borneo) Expedition: Bornean Stingless Bees of the Genus *Trigona*." *Bulletin of the American Museum of Natural History*, vol. 73, art. 3, pp. 281-329.
26. MICKEL, C. E. (1937): "New Species and Records of Mutillidae (Hymenoptera) from Borneo and the Solomon Islands." *Annals and Magazine of Natural History*, ser. 10, vol. 19, pp. 441-456.
27. KIMMINS, D. E. (1936): "The Odonata of the Oxford University Sarawak Expedition." *Journal of the Federated Malay States Museums*, vol. 18, pp. 65-108.
28. BEIER, M. (1937): "Results of the Oxford University Expedition to Sarawak (Borneo), 1932." Mantodea. *Proceedings of the Royal Entomological Society of London*, ser. B, vol. 6, pp. 177-181.
29. SPARROW, F. K. (Jun.): Some Chytridiaceous Fungi from North Africa and Borneo." *Trans. Brit. Myc. Soc.*, vol. 21, pp. 145-151, 1938.

It is hoped that a complete enumeration of the plants collected will shortly be ready for publication. The papers listed above will shortly be obtainable in a collected form under the title *Borneo Papers*, to be published by the Oxford University Press. Other work is still in preparation and a further series of papers will be published next year.

2. SURVEY. By SHACKLETON

It was only recently that a Government Survey Department under Mr. C. N. Middlemas (who gave us every help both before and during our stay) was organised to carry out a thorough survey of Sarawak. Rather than attempt to clear up the muddle of previous maps a start was made on a triangulation scheme. A base line with an error of less than 1 in 1,000,000 was measured near Kuching, the capital, and the triangulation has now progressed a considerable distance; it will, however, be some years before it is carried through to join on to the triangulation in British North Borneo. Hitherto all maps of Sarawak have been compiled from an unreliable mixture of sources.

Sarawak Oilfields Limited, in the years before the war, sent their geologists and native surveyors up many rivers, and attempts have been made to fix the general formation of the mountain ranges. They also made an aerial survey along the flat coastal belt in the oil-bearing areas. The Government have the right to all maps produced by Sarawak Oilfields geologists, but owing to the constantly changing staff of the latter this plan is not fully operative, and the Government would do well to ensure closer co-operation. The only maps obtained previously for general purposes were those made by Charles Hose (1880-90). These are simply sketch-maps, and are based on a mixture of compass bearings and hearsay. Though many of the places and mountains are wrongly named and very wrongly placed, it still remains as the only map which begins to show at all the extremely mountainous nature of the country, as well as giving interesting information about tribal distribution of natives and the presence of such physical features as bad rapids and waterfalls, from which it is always possible more easily to visualise the nature of the country. Doubt, however, may be cast upon the morality of drawing a sketch-map, as was done for Hose's R.G.S. paper (*Geographical Journal*, vol. i. (1893), pp. 193-208), fixing it in a map projection, and then measuring off the longitude and latitude of places to within seconds, when there was an error of over twenty miles in the position of his own residency. Hose's mountain heights were also pure guesswork; some are over 2000 feet out. The official map of Sarawak, published in 1931, is an unpretentious affair, showing the triangulation work up to date, but in addition several larger scale sheets have been produced showing the triangulation and river surveys of the first three divisions.

One of the chief duties of the expedition surveyor was to assist the other scientists of the party in giving the height at which their

specimens were collected. The dense forest prevented anything except the summit of Dulit from being fixed by trigonometrical methods. A chain of aneroid heights was therefore carried up the mountain-side, and stations were marked by which collectors could estimate the altitude. A series of readings gave a final height value to Igok Peak of 4600 feet, the mountain camp a value of 4000 feet. The camp on the Koyan River was computed at 2500 feet. The diurnal wave, which was very regular, had an average range of about 0.15 inch, reaching its lowest point between 3 and 3.30 p.m., usually just about the hottest time of the day, which was frequently succeeded by a thunderstorm and the regular afternoon rains. The position of the camp was lat. $3^{\circ} 18' 53''$ N., long. $114^{\circ} 17' 23''$ E., fixed by a series of star observations, three pairs east and west, three pairs north and south. These few represent the better part of three months' waiting for clear skies. On very few nights indeed were stars seen; even then the sky was only partly clear. The observations were obtained within two hours of sunset; for even on the rare cloudless nights a heavy mist always closed in shortly after 8 p.m. A large number of sun observations were taken as checks; these were not difficult, and gave surprisingly accurate results, agreeing within 0.2 of a second of time with the value obtained from star observations. An efficient wireless set was essential for astronomical purposes. We used an Eddystone All-Four Short-Wave receiver lent to us by Messrs. Stratton, and Ever-ready batteries lent by the makers. We took regular time-signals (also concerts) from San Francisco, Kavite in the Philippines, Malabar in Java, and various European stations. The International Short-Wave Club also sent messages to us from America.

A river base was measured by subtense as part of the river survey, and by this means points on the Dulit range were fixed. No serious attempt had previously been made to map the mountain ranges, and a series of hill intersections were made from the Top Camp and from Igok Peak—half a mile to the south-east. The alleged positions of mountains were often found to be miles out, and the whole map had to be shifted to bring it into correct relation with fixed positions at the Base Camp and Marudi. The difficulties of work from the mountain-top were considerable, the chief obstacle being the almost continuous rain and cloud with which Dulit was surrounded. Ordinarily the distant peaks, such as Batu Lawi, Mulu and Kalulong, were visible only at dawn before the clouds had risen from the valleys. In addition, the densely clad mountain-tops precluded any accurate intersection, and the depth of the moss on the summit prevented steady levelling. Even the slightest movement by the observer upset levelling; not

even by the use of four-foot stakes driven into the moss was this difficulty overcome. During the first part of the mountain work we had the services of C. N. Hammond of the Sarawak Survey, but at that time (September) the weather was so bad that very little work was possible. Not until a fine spell in mid-October was a complete series of intersections obtained, but we were then able to observe, in addition to the innumerable ranges in north Sarawak and on the Dutch border, many peaks to the south-east and south-west in hitherto unknown country. The name question presented difficulties as we were often unable to point out to the native who was giving the information the actual range or peak amid the confusion of mountains. Reliable informants often attached different names to the same peak, and the only sure method is to take the name used by the people (if any) living nearest to the range in question. The names on Hose's maps are similarly unreliable.

The Malay surveyors lent to us by the Government were quite competent. One, Junit, was engaged on the river subtense, which he successfully took down 125 miles as far as Marudi (S.O.). A less highly trained man, Taha, surveyed special areas around the camp according to the wishes of the biologists, and was later engaged in mapping (by chain and compass, or by range-finder) the headwaters of the Tinjar and its tributaries. In addition, he took connections overland to the Baram River and to the Belaga, which latter path was followed by Harrisson at the beginning of his expedition down the Belaga to the Rejang (in November), where he did time and compass surveys. Moore and Shackleton also completed journeys in unexplored country, and both managed to produce maps of their travels by rough compass traverses.

3. PHOTOGRAPHY

OVER six hundred good negatives were obtained, including pictures of animals, orchids, rivers, mountains and cloud views, floral zones, native parties and a complete record of all natives who worked for us. Synge, the official photographer, used a Soho Reflex $\frac{1}{4}$ -plate tropical camera with Dallmeyer Pentac F/2.9 lens and a Ross Teleros F/5.5, 13" lens; and a $2\frac{1}{2} \times 3\frac{1}{4}$ " Etui camera with Zeiss Tessar F/4.5 lens. Ilford Special Rapid backed Panchromatic plates were satisfactory (film packs tended to jam). Hobby and Moore used a Voigtlander F/4.5 and a Nagel F/6.3, ordinary $2\frac{1}{2} \times 3\frac{1}{4}$ " models, with anastigmatic lens; ordinary Kodak No. 120 roll films were found better than Verichrome in which the backing stuck to the negatives. Dallon and Kodak tanks and Tabloid tancol were used for developing, which was done on the spot; sodium sulphate, 10 per cent. by weight in the developer, followed by a bath of chrome alum for ten minutes, were used as hardeners. Drying was very difficult, and many negatives were injured by dust and foreign matter in the air; it was found best to hang films (securely fixed against wind) for twenty-four hours in the roof rafters of our camp. Kodak negative albums were used for storing, and plate negatives were sent back to Singapore as often as possible. In the open F/16 was found best; mountain views on clear days required $\frac{1}{2}$ second at F/11 (with heavy filter) on misty days 1-2 seconds at F/16; in the rain-forest 6-10 seconds at F/22.

4. METEOROLOGY. By DR. P. W. RICHARDS

IN Sarawak the south-west monsoon blows from April to October and the north-east for the rest of the year. The period of the north-east monsoon is usually considered the "wet season," but actually the rainfall is fairly evenly spread through the year. As we were at Mount Dulit from the beginning of August till nearly the end of November we were able to sample both types of weather.

Meteorological observations were made at both the Base Camp and the High Camp, but it was impossible, owing to pressure of other work, to keep continuous records at either for the whole period of the expedition.

At the Base Camp, temperature and humidity were constantly high. The daily maximum temperature averaged 88° F., but was 4-5° lower in rainy weather; the average minimum was very constant at 73° F. Humidity was always near saturation at night, but fell to about 60 per cent. on sunny days. At 4000 feet the climate was much cooler, the mean temperature being about 10° F. lower than at the Base Camp. The daily range of temperature was greater; the mean maximum was 79° F., the mean minimum 63° F. In spite of the general impression of extreme dampness, the humidity frequently fell to 90 per cent. at midday: on one very warm, dry day in September, 39 per cent. was reached. Though mist and rain are the characteristic features of the mountain climate, dry spells do occur and cause a considerable drying up of the moss forest.

5. ZOOLOGY. By HARRISSON

(i) MAMMALS

MAMMALS were numerous, and about 350 specimens were collected, mainly from the peculiar faunal zones above 3000 feet. Squirrels are the dominant group, being represented by thirty-six species, including flying squirrels, tree-top squirrels and ground squirrels, the smallest 3 inches and the largest 3 feet long. Several new squirrels were obtained, among them a flying squirrel unlike anything previously known in Borneo. Special attention was paid to the exact distribution of *Sciurus prevosti*, which appears to be represented by distinct races in almost every river and mountain system in Borneo. Monkeys were abundant in numbers but not in species. Only gibbons, macaques and a leaf monkey were encountered; the leaf monkey provides a curious problem in that there are three closely allied *Pygathrix* species, which recent writers have attempted to prove are only dimorphic phases of *Pygathrix everetti*. Our evidence does not support this view and suggests that *Pygathrix hosei* and perhaps also *Pygathrix sabanus* are specifically distinct from *everetti*. The very interesting and primitive tree shrews (*Tupaiaidae*) were represented by thirteen mountain and lowland forms, feeding on or fairly near to the ground. Civet cats, including the rare *Hemigale hosei*, wild cats and mouse deer were caught in snare-line hedges. Wild pig were common in the forest, but buffalo and rhinoceros very rare and local within the area covered by the expedition. Hartley made large collections of bats in the Baram caves, and no doubt among them are a number of forms new to science. The soft parts, gonads and food contents were examined in all specimens collected, and parasites taken where possible. The general collections go to the British Museum of Natural History. Topotypes of any new forms that may be described (especially bats) will be sent to the Raffles Museum, Singapore, and a part of the collections to the Kuching Museum, Sarawak.

(ii) BIRDS. By HARRISSON and HARTLEY

INCIDENTAL to observational work, 1050 birds were collected, at all levels from the river to Igok Peak, and in many parts of the Baram and Tinjar River system. A number of new forms have been described by us, and we expect to describe others in the future. The habitat and mountain zonation were worked out in detail. Two species only

were common to virgin and rain forest, padi clearing and all the types of secondary forest between these extremes; on the other hand, only three species were peculiar to the clearing and about five to secondary jungle. The rain forest is the primary ecological unit, and the population in other habitats is simply a section of that in the rain forest. Many birds are confined to the rain forest. Five lowland species were found in the moss-forest zone (above 4000 feet), but no mountain species go down to the lowlands.

As has been described above, tree-top stations were established in the forest canopy. Observations from these proved that there was no particular canopy bird fauna and that there was little or no activity in the canopy between 8 a.m. and 4 p.m., all birds moving down into the sub-canopy during the heat of the day. There was no sort of distinct stratification of bird life in the forest, a conclusion also reached by the botanists; the statements to this effect in most popular and scientific books stand in need of revision. Three groups (spider-hunters, broadbills, sunbirds) were breeding during our stay; most others had finished shortly before our arrival (*i.e.* in July). "Territory" was observed only in spider-hunters and trogons; and it was curious that mixed flocks were conspicuous only by their absence. Special studies were made on the habits and the mythology of spider-hunters (*Aracnothera*)—the chief omen birds of Borneo, on the food of broadbills (*Eurylaimus* and *Calypptomena*), and on song periods in *Trachycomus*. Hartley undertook a detailed study of the esculent swifts in the bird caves on the Baram in November. Notes were made on the soft parts, gonads and food of all specimens collected. The main bulk of these collections go to the British Museum (Natural History), duplicates and topotypes to the Singapore, Leyden (Holland) and Kuching Museums.

6. GLOSSARY OF COMMON BORNEAN TERMS

- Aso* : the pattern of tattoo and most other native designs (see Synge's essay).
- Borak* : a fermented drink made from rice.
- Chawat* : loin cloth of native make, worn by men.
- Dayong* : priest or master of ceremonies at a religious function. Also a doctor or professional prophet.
- Isit* : an omen bird.
- Kajang* : a gabled shelter roofed with leaves temporarily erected as a shelter over a portion of a prahu.
- Korap* : a disease which dries up the skin, making it flake off in complicated patterns (*Tinea imbricata*).
- Long* : the junction of a tributary with the main river. Long Lejok : the place where the River Lejok joins the River Tinjar.
- Long House* : the English name for the dwelling-place of an Ulu community. So-called either because of the elongated nature of these dwelling-places or because most of them are situated near a "Long" : thus—Long Mobai, Long Kappa.
- Mandor* : headman.
- Orang puteh* : the white man.
- Orang tsinah* : Chinaman.
- Orang ulu* : the up-river people as distinct from the orang laut or people living near the coast.
- Padi* : rice.
- Pantang* : taboo.
- Parang* : a short sword.
- Penghulu* : the senior chief of a district, assisting in administration directly under the District Officer.
- Prahu* : a canoe generally dug out from a single tree.
- Rotang* : a kind of creeper.
- Rumah* : a house, usually the dwelling-place of a community.
- Sapeh* : a sort of two-stringed mandoline (see photo).
- Sarong* : a length of material worn round the body.
- Sejok* : cold.
- Sigup* : a cigar or, in a wider sense, tobacco.
- Sireh* : a fresh, bitter leaf, smeared with lime or chalk, and wrapped round a betel-nut (*pinang*) and chewed.
- Sulap* : a lean-to shelter constructed of stakes and roofed with leaves which may be erected in a short time as a temporary abode for a small party.

Tabek : greetings.

Tawak : a large brass gong—used in certain circumstances as a form of currency.

Tedah : no.

Tuan : a male title of respect—sir—a chief.

Tuan Rumah : the head of a long-house community.

Ulu : up river or, in a wider sense, hinterland.

THE EDITOR SUMS UP

WELL, what did all this money and fuss achieve? For this book by itself would hardly justify our large scale expedition. But I think the book symbolises the more permanent results. It shows what different sorts of people we were, and it shows the different sorts of thing we got from going to Borneo. Each one of us has been altered by the experience of Borak and Belles, Tattoes and Canoes, pitcher plants and mad whirling dancer.

Half the expedition's personnel started on the eccentric road of other and more ambitious adventures. The other half stepped from the expedition and its enormous material results in terms of specimens and new facts, on to the gradual ladder of High Tables and higher degrees, pressing towards the ultimate pinnacle of "Prof."

And though Hobby and Richards seem for ever anchored to their fellowships, Ford has just chosen to go from an Oxford research post into the deadly Tsetse fly belt of Africa where he may research in discomfort, while the fourth of the educational establishmentarians, Hartley, sneaks away annually to some ice-berg lair in the Arctic. The unacademic four directly prefer climbing Mountains of the Moon rather than monuments of learning. In an age of cocktails and sports cars, inadequate A.R.P. and unhappy undergraduates, a few fools of our type are not out of place.

There are already rumblings from North Oxford and South Kensington from those who worship the accumulation of innumerable insects or statistics, and who are ready to loathe this book publicly!

But we don't need to worry about that, because our criticisms are supported by the experience of many

months hard work in the Borneo Jungle, collecting the insects and statistics, not to mention the insect bites and the sickness. The long list of papers so far published as the result of our work, given in the first appendix, proves that we have done the right thing by our sponsors. It can't be wrong to want to live a bit as well as to learn. The living has been our main subject here, though in that, too, we have been able to find out something about Bornean culture that was not known. For the learning you are cordially invited to try and read the twenty-nine publications listed on page 237—or just read the titles!

So Science marches on. . . . And so must we.

The last of Stone Age in Central New Guinea, rock plants and the snows of the Andes, people of Thibet, the exploration of the savages of Mayfair and Blackpool by Mass-observation—these are items on the forthcoming Menu of our separate lives.

And, no doubt, for all of us there looms the gigantic possibility of a march to a different rhythm, of gas mask and falling bomb, death meaningless. For we live in a world of head hunters, black skinned and black shirted, white and lily-livered.

The story of our civilisation's magnificent progress is written all the way from Long Miri and Mt. Kalulong to Berchtesgarden and Alsace Lorraine. The ink is blood, and into it the bayonet dips deeper than the pen.

So Science marches on. . . . And so must we.